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AGRICULTURAL.

The buds of all fruits are now growing, and next year's crop depends upon their being well grown.

Do not let the strawberry runners crowd each other; thin them to six or eight inches apart and when they crowd too thickly cut out the parent plant so as to stop too rank growth. Pinch off the surplus runners also.

The San Jose scale insect is made the subject of Bulletin 66 of the Virginia Experiment Station. The nurserymen are advised to fumigate their stock with prussic acid and buyers are warned not to buy stock that has not been fumigated.

Raspberry and blackberry canes should be thinned out so as not to stand nearer than ten or twelve inches in the row, and the long ones cut back to about four or five feet high. All old wood should be cut out at the surface of the ground. The canes will ripen better if the ground is left without cultivation.

SECRETARY Sessions' crop report is at hand.

Corn is backward and not more than three-quarters of a crop on the whole. Rowen is very heavy but somewhat difficult to secure in good order. Late potatoes very poor indeed, blight and rot very prevalent. Tobacco has suffered from too much rain. Late apples do not promise well. Pears are very abundant; peaches better than usual, but some rot reported; the same with plums. Cranberries poor, not more than half a crop. Pastures in fine condition. Oats and barley not an average crop, too much rain has caused rust and lodging.

In the southeastern portion of the State much attention is paid to poultry, and the income from it is nearly, if not quite, equal to that from the dairy. Elsewhere it seems to be rather a side issue, though its keeping is generally thought to be on the increase. In all sections there are some who make it a specialty. The general opinion seems to be that, with proper care, poultry keeping is more profitable than dairying, and that, even when allowed to take care of itself, poultry makes a good return on the capital invested. We cannot make an estimate as to the income from poultry compared to that from the dairy for the State as a whole, owing to the meagre and varied answers returned to this portion of the question.

The Outlook.

There are several causes which are at present combining to give a cheerful and hopeful aspect to the outlook both for farmers and for those engaged in other industries.

In the first place we are blessed with an uncommonly heavy wheat crop which is meeting an unusually good market. We may not have so large a surplus for shipment as in some former years, the rapid increase of our population is yearly diminishing our ability to supply a large foreign demand, but the demand exists now, and is something more than mere speculative excitement. Other countries are suffering from

drouth or flood, and must be fed from our surplus. It is hardly likely that we shall for several years see prices for wheat rule again so low as for the few years past.

Then again the disturbing question of the tariff has, at least for a time, been settled, and merchants, knowing what to expect, will adapt their plans to the new conditions and go ahead.

The inactivity and timidity of the last two years, the result of uncertainty, are rapidly giving place to confidence and enterprising industry, accompanied of course to some extent by wild and unhealthy speculation.

It is not much to be feared that the question of unlimited silver coinage will again very soon disturb the finances of the country. This danger is dead, and it will need something more than the mischievous eloquence of a Bryan or a Debs to galvanize its corpse into life. The spectacle of a constantly falling price for silver while wheat is still more rapidly rising in value, is opening the eyes of the people to the truth, that we need only one standard of values, the one chosen by the common consent of the civilized nations of the world.

Let us not, however, overlook the fact that we have a currency composed of many different issues, a large part of which is nominally redeemable only in silver and is a menace to the credit of our country, and the prosperity of its business until it shall be placed beyond all question or chance upon a gold basis.

The manufacturing industries of our country were never in a more hopeful condition. We are sending iron, steel, and electrical machinery in large quantities to England and all over the civilized world. Our mines, our inventive genius, and above all our fertile soil and industrious and intelligent farming population are combining to make us one of the most prosperous nations of the earth, and nothing short of consummate folly and base corruption can prevent us from also becoming one of the most happy and contented of nations.

An Effectual Insect Destroyer.

Hydrocyanic or prussic acid gas has long been used in California as an insect destroyer. Recently it has been successfully used in greenhouses by the Department of Agriculture at Washington.

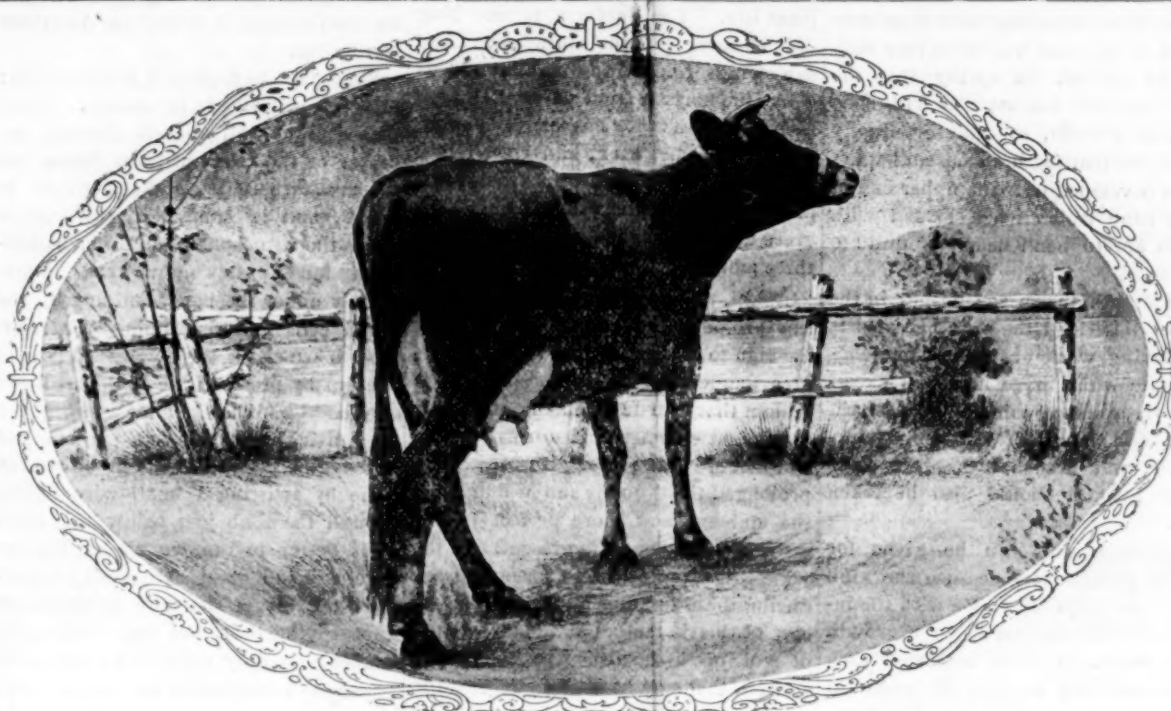
The Department of Agriculture has been experimenting with the gas in its greenhouses for three years, and is glad to demonstrate its usefulness. The gas used in fumigating the greenhouses is made by mixing potassium cyanide and water with sulphuric acid, in the proportion of one part of cyanide to two parts of water and sulphuric acid.

The amount of potassium cyanide varies with the plants to be fumigated. For violets 15-100 of a grain was used for each cubic foot of space. The work is done at night, as light affects the composition of the gas. In the centre of the greenhouse an earthen jar containing sulphuric acid and water was placed. Above this was hung in a strong paper bag the cyanide. From the bag a string ran out of the door of the greenhouse. When all was ready, the doors and windows having been closed, the operator loosened the string and let the cyanide fall into the boiling liquid below, hurrying out of the greenhouse as he did so, to escape the deadly fumes.

Ventilators were opened after twenty-five minutes had elapsed, and the gas allowed to escape through the roof. In three-quarters of an hour the gas had all escaped, but it was not considered safe to enter the greenhouse for some time after that. Previous experiments had shown that all insects, except perhaps the red spider, were killed when exposed to the gas for half an hour. The cost of fumigating a house 100 by 18 feet was about fifty cents.

Greenhouses need not be fumigated more than once a month by this process, whereas tobacco fumigation has to be repeated at least once a week. The gas does not injure the plants, nor is its odor perceptible on the violets.

The only objection to this method is the extremely poisonous nature of the potassium cyanide and the acid gas.



JERSEY COW, RIOTER'S QUEEN.

PROPERTY OF MRS. E. M. JONES, BROCKVILLE, ONTARIO, CANADA. 47 LBS. OF MILK A DAY; 17 1-2 LBS. OF BUTTER A WEEK.

A Handy Dairy Barn.

A convenient barn is an absolute necessity in successful dairying; and although I do not suppose that I have by any means reached perfection in this line, it may be helpful to some if I give a brief description of one I put up a few years ago.

In size it measures 26x50. It should have been at least four feet wider, and I intend to make the floor longer next spring by dropping the roof down a few feet and running the timbers out ten or twelve feet. A bay for hay occupies the east end from first floor to roof. Then comes the "big floor." West of this are horse stalls; opening out of this the loft of a 30-foot shed, filled with straw. A pair of stairs leads up from this room and another pair down into the basement. On the roof is a cupola, fitted with blinds for the furnishing of air. Surmounting the cupola is a staff supporting a compass and arrow. Nothing on the farm is inspected more frequently by our own folks and those who pass by than this compass and arrow. The first floor is entered by a bridge and extending nearly the whole length of the barn, and spanning a space of eight feet between the barn and wall. I think this much better than to let the wall form a part of the basement proper, as many do. The stables are always dry and several windows under the bridge admit light.

The cow stalls face an alley running along the north side of the barn. A chute from above lets hay and cut corn into this alley right where it is needed for feeding. In the end of the stable is a box stall for sick cows and in the other end bins for grain. Behind the cows are windows opening into an open shed under which is stored the horse and cow manure, the former being used to take up the moisture from the cow manure. The shed spoken of above as being connected with the horse department is open below for cattle to run under. This barn is battened from top to bottom and the boards surfaced and painted. It very rarely freezes in the stable in the coldest weather. Fresh air is easily furnished by the hay chute which draws from the cupola. A carrier delivers hay both ways from the barn floor. Many who have examined this barn pronounce it a very handy one in which to do work and so do I.

E. L. VINCENT,
Broom Co., N. Y.

Specialties in Farming.

Scarcely a week passes that we do not read an editorial in an agricultural journal or a letter from some practical farmer advocating diversified agriculture. "Don't put all your eggs in one basket" is their favorite proverb, and they overlook or forget the equally useful proverb "Jack at all trades is good at none."

When our country was first settled, before the railroad, the telegraph, the rapid mail service and the telephones made communication easy and rapid, it was customary for the farmers to boast of raising nearly everything needed by their families upon their own farms. The woolen and linen clothing came

from the sheep and flax produced upon the farm and laboriously worked up by the tireless women of those times upon the domestic spinning wheels and looms. Even the shoes and wagons and plows were often home made with slight help from the village cobbler or smith.

While it cannot be denied that the men and women bred and born in this age were a sturdy, vigorous, industrious and independent people, whose manly and independent qualities compare favorably with any people and any age, and whose average morality and piety was probably quite as high as prevails at present, it must still be admitted that times have changed and that division of labor is rapidly working almost as great revolutions upon the farm as it has already accomplished in the factory and store.

How to Pick Apples

There are three ways of securing the apple crop—by shaking the fruit from the trees, by gathering it by hand and then dropping the apples into the basket, which may be hanging on the ladder two or three feet below our reach, and the third way of gathering the fruit by hand and carefully laying each apple in the basket. The tremendous crop of last season here in eastern Massachusetts affords the opportunity to test the comparative merits of each of these three plans when carried out on a large scale.

The argument of those who practice the first named plan was that the apples were so plenty and consequently cheap, that it would not pay to hand-pick them, and the shaking of them off on the second crop of grass growing beneath the trees would bruise but a small per cent of the fruit. An Atlantic cyclone, which descended on us soon after we had begun apple-picking, gave me, to my exceeding regret, an opportunity to test the merits of this system of apple-gathering. All the fruit lying on the grass under the trees was carefully gathered up and piled before we began hand-picking.

I gave the gathering up my personal supervision, to see to it that the fruit was carefully laid in baskets, and that these were carefully emptied on the piles. At convenient intervals these piles were sorted over, the small and bruised fruit being carried to the cider mill and the apparently sound put in barrels. These barrels were protected from rain and carried from time to time to the shed, where the fruit was again carefully examined under my supervision, and only such as appeared to be perfectly sound were put in barrels, headed and transferred to the dark, cool cellar. The remainder of the crop was hand-picked as carefully as I could get it done by my regular farm hands, all under careful supervision.

As these men were not hired to pick by the barrel, they had no motive to slight their work. These apples also were headed up in barrels and put in the cellar, side by side with the first lot. Two months later I took from the two lots about forty barrels to market, and, unheading, picked them over, and made the following memoranda on the results, which I copy from note-book: I find that windfall apples, taken from the grass ground, and apparently all sound, at the time of picking, have rotted

nearly a third within two months from the time they were barreled, while those carefully hand-picked from the trees have rotted about one-fourth. On February 10, another lot of these sorted windfalls averaged about half-sound to the barrel, while the hand-picked of the same variety (Red Russets) gave about a couple of quarts of unsound ones to the barrel.

The dollar-and-cent inference from this investigation is that the best sort of windfalls are a pretty ticklish sort of an investment, and that in seasons when apples are cheap and labor high as of average years, it is decidedly cheaper to send all this quality of fruit directly to the cider mill rather than be at the care of gathering it together, and making two careful sortings of it, to have a third rot on your hands before marketing; for the rotting is not only so much direct loss, but also the loss of much time in overhauling and wiping the sound fruit that remains, so as to make it decently presentable.

Now, a remark or two on the practice quite general of hand-picking the fruit and then dropping it into instead of carefully laying it in the basket. I had recently occasion to examine two large lots of apples which had been gathered by the two different methods. Each lot was kept the same way, in large bins and in cellars. In one, the carefully handled, I could hardly find at this date (February 22), a rotten apple; indeed, on looking carefully over a surface that would make several barrels, I saw but a single decayed fruit, while on the lot picked by dropping process, from one-fifth to one-quarter of the fruit was unsound. In the first instance, the owner had gathered his apples with his own hands, and in the other there had been boys employed.

Consider now the loss which is the result of careless handling of the fruit. One man boasted to me that he had picked twenty barrels a day; I felt that I could not afford to employ him; another could pick with care from eight to ten barrels per day. Apples picked by the first man would have cost me directly about ten cents a barrel; those by the second about seventeen cents, a difference of seven cents on a barrel for picking.

Now let us consider the indirect, and yet just as real cost. At this season of the year Baldwins are usually worth from \$2 upward per barrel. Assuming that the carelessly picked fruit loses one-fifth by rotting, and the carefully gathered one-fortieth, then the loss on the fruit of the first is thirty-five cents per barrel more than on that picked by the careful man; and adding this indirect to the direct cost of his work, his fruit-picking has really cost me forty-five cents a barrel, while the work of the careful man has cost but seventeen cents.

The remark of the wise man made last fall, that the profits of the apple crop in the season of unprecedented plenty would ultimately be found in the pockets of the careful picker, is abundantly demonstrated by the comparative condition of the fruit in the cellars of hundreds of farmers at this date. We cannot afford to employ these careless fast pickers. We would make more money in the end by hiring them at \$5 a day to let the apples alone and eat roast turkey and plum pudding at our expense.—J. J. H. Gregory, in the Farmers' Guide.

Wayside Gatherings.

Large pieces of old sod form the very best winter protective material when obtainable. These heaped about the roses will protect the most tender from severe freezing, and they come out in the spring in splendid order. It is just as good used about any other hardy plant.

Soot from the kitchen chimney, especially from a wood fire, is invaluable in cultivation of flowers. Rich in ammonia it stimulates and deepens the color of flowers. Used as an insecticide it is equally effective in destroying and removing the pest on account of the creosote contained in it. Soot from hard coal exclusively is of less value, still it is worth saving.—Vicks Magazine for September.

Pure Milk.
Dr. Charles Harrington, milk inspector of Boston, gives in the Boston Herald his ideas of needed legislation.

He says: "I have long been of the opinion that our statutes relating to the inspection and sale of milk, while admirable as police measures for the prevention of adulteration, need considerable strengthening as sanitary regulations."

"It is contrary to law to sell milk from cows fed on distillery refuse or milk from diseased cows, but there is no provision for preventing the sale of milk from dairies where cases of infectious disease such as typhoid fever exist, or the handling of milk intended for sale by persons who may be convalescent, or nursing others. Two or three years ago I discovered a young man just recovering from scarlet fever engaged in putting up milk in small cans for his family trade, and at once prepared a bill which was introduced in the Legislature, giving local authorities the power to suspend the license of any dealer whenever and for so long a time as it might seem best for the protection of the public health, and to prohibit the sale of the supposedly infected milk during the period of suspension. The bill passed the committee and one chamber, but was killed in the other. Since that time I have been gathering material with which to support another attempt on the same lines."

"I am very glad to know that the associated boards of health are so much interested in the matter of clean, wholesome milk, and hope that their report will favorably influence the Legislature to grant any legislation which they may ask to remedy existing evils."

"With a view to arousing public interest in the necessity of having clean, fresh milk in place of the kind which Prof. Sedgwick has often described, I began some weeks ago an inspection of the stables of all licensed dealers who deliver milk in Boston. Most people are not aware of the fact that a very large part of the milk consumed in Boston comes into the city one day and is distributed the next, and that in the meantime it is handled more or less and stored in stables where horses and other animals are kept. This milk could be delivered before noon every day if families would not be so particular in insisting on delivery before breakfast. They wish to have their milk that number of hours fresher, and in order to please them the dealer must store it in his stable until the next morning. In other words, by insisting on early delivery they get milk nearly twenty-four hours older, which might just as well have been kept in their own refrigerators away from horses and other animals."

"But to return to the inspection of the premises where the milk is stored. This work was begun independently, and without the knowledge that a similar inspection of stables within the city limits had been begun by the board of health. Thus far nearly all the out-of-town dealers who come into Boston from Lexington, Waltham, Newton, Cambridge, Arlington, Chelsea, Somerville, Everett, Dedham, Milton, Hyde Park, Quincy and other towns, have been visited and their premises examined. As a general rule the condition of the stables and surroundings has been excellent, but in certain cases a state of affairs has been discovered which should warrant the immediate prohibition of any further sale of milk."

"In one place, for instance, the ice chest stood within a few feet of the manure heap, the floor all about was covered with liquid filth, and the cans ready for receiving milk were standing in and on manure. Everything about the place, inside and out was in such a filthy condition that exaggerated description would be difficult. In another place where cows as well as horses were kept, there were cows so filthy that back of their shoulders their color could only be guessed at. Such places are, fortunately, not numerous, and most of them are without the city limits. Photographs of interiors and exteriors of stables have been taken for use later on. Some have been taken, also, of some of the cows."

"Milk from such places ought not to be allowed entrance into the city, and it is to be hoped that we may soon have power to prevent it."

The General Principles of Dairy Practice the Same Everywhere.

It is quite a common habit with dairy farmers in California or the Eastern States to excuse themselves from the pursuit of dairy literature published in a distant part of the country, on the ground that what is there said does not apply to their section. Farmers can make no greater mistake than this. There is no branch of farming that is more nearly alike in principles, practice and general application in all states, than dairy farming.

In the month of March we visited a large dairy at Los Angeles, California, where the cows are grazed but little, but are supported mostly on the soiling system. In no particular was there any difference in the dairy practice in this dairy from that which obtains in Wisconsin, Ohio or New England, except in the one particular of soiling and barn shelter. The gentleman who owned the dairy was a keen student of all literature that shed any light on the experience of others, yet he stated that it was almost impossible to get his brother dairymen to read standard dairy literature on this question. In his own words—"they excuse themselves from any outlay in this direction, because they claim the business is not treated from a California standpoint." He stated, positively, that they stood in their own light, for, as he asserted, he had gained very profitable knowledge in the management of his California dairy, from the experiences given in Hoard's Dairyman, Grier's American Dairymen, and other standard sources. The gentleman was right. Not a dozen miles from this city is a large dairy of cows run on the soiling plan, summer and winter, and the methods of management are almost identical with that of the California dairy, except that the Wisconsin herd must be provided with warmer shelter in the winter.

The laws that govern the practice of breeding and handling the cow, are the same everywhere.

The laws that govern the milk giving function in the cow, and the digestion of her food, are the same in all states.

The laws that govern the handling of milk and the making of butter and cheese are just about the same from the Pacific to the Atlantic.

What then are the differences in this business between different sections which shall, in the end, modify results? Simply these:

- (1) The difference in climatic effect on the cow and her product.
- (2) The difference in the fertility of the soil affecting ease and cheapness in the production of her food.
- (3) The difference in the cost of transporting her product to the consumer.
- (4) The greatest of all is the difference in the dairy education, dairy judgment—in a word, the dairy "gumption" of the men in different sections who handle cows. It is simply amazing that a difference in profits exists between the man who educates himself in dairy wisdom, and the man who does not. This is not a difference of climate, east or west. It is the difference of intelligence. This difference is seen in every creamery, every community, every county and every state. It is the difference between wisdom and ignorance.

The wise man believes dairy farming is largely brain work. The ignorant man believes it is nothing but hand work.

The brainy farmer feeds his mind with the best dairy thought and experience he can get, whether it is found in California, New England or Wisconsin. He trusts himself to know whether it will apply to his location and climate. The ignorant man feeds his body only, and lets his brain starve. He makes all sorts of excuses against feeding his mind; against taking in the valuable experience of his brother dairymen; maybe he says he don't think it will apply to his climate. Who ever heard of the science of arithmetic or any other science being different in one state than in another?

How shall we learn to equalize all differences, and so extract valuable truth from all experiences?

(1) By coming to understand that we know very little about the mystery of maternity as seen in the cow, and that it will prove mighty profitable to study human experience with her in all climates.

(2) By studying the relation of temperature to the cow and her milk; warmth to the proper degree promotes milk secretion. Cold shrinks it. The proper degree is in the cow, not her owner. She knows it; he must guess at it. It is a question of comfort with her. This applies in every land under the sun. Intelligence seeks to understand it; get a judgment on it. Ignorance ignores it, sneers at it, despises it, calls all this talk theory, and ends in failure.

(3) The law of good air, wholesome food and pure water is the same everywhere. If we violate that law in New England or California, the maternity of the cow will fall to respond to our profit.

If we are ignorant, in one place or the other, concerning all these intricate

laws, our location will not help us out. Hence we should learn, and the quicker, the better. The first great work in securing dairy salvation is to seek sound knowledge concerning the cow, how to breed her, how to feed her, how to stable her, and how to keep her healthy; how to most skillfully handle her milk, how to feed her skim milk, and get the most profit out of it; how to handle the soil so as to grow the largest and best food crops, and still keep up the power and fertility of that soil. This constitutes a big question, and the man, be he in California, Maine or Colorado, who thinks he can do it most successfully by keeping in ignorance of the current of standard dairy thought, is fooling himself badly.—Hoard's Dairyman.

The Gooseberry.

The cultivation of the gooseberry has been made the subject of a bulletin issued by the horticultural department of the New York Experiment Station, from which we make some extracts which will be valuable to those who are engaged in growing this fruit.

In order to have the plants do well the land should be well drained and at least fertile enough to grow a first-class crop of corn till they come into bearing, after which they should be liberally fertilized. It is unreasonable to expect regular crops of large, fine-flavored fruit from bushes which stand in poor soil or in tough old sod, where they struggle for existence in ground that is crowded with the roots of grass, weeds, trees and shrubs, yet it is not unusual to find that such bushes are depended on for the family supply of gooseberries. It is much better to give gooseberries clean cultivation when they are grown for home use the same as when grown for market. On this account it is best to plant them so that a horse cultivator may be used in keeping the ground mellow and free from weeds. A heavy mulch of coal ashes sufficient to keep down the weeds is better than utter neglect.

As a commercial crop gooseberries are often grown as a secondary crop in well-cultivated orchards, especially when the orchards are young. Abundant yields cannot be secured from gooseberries set in this way after the orchard trees are large enough to shade the bushes and fill the soil with their roots.

Sometimes gooseberries are set between vineyard trellises, or where the vines are grown on the Kniffen system, under the trellises, alternating with the vines. In the latter position the gooseberries are liable to be spotted by the spraying mixture when the vineyard is sprayed.

When gooseberries are set in vineyards the trellises should be at least ten feet apart, thus leaving the gooseberries five feet from the trellis when they are planted midway between the vineyard rows. The gooseberry plants should stand five feet apart in the row, although some advocate closer setting. In orchards they should not be set nearer the trees than six feet. In the open field they are set so that the cultivator may run both ways, the gooseberries should stand at least five feet apart. If the cultivator is to run but one way the rows should be six feet apart, and the plants four feet apart in the row. Strong growing varieties may need to be planted at greater distances apart than those just given.

In preparing the plants for setting out, broken or bruised parts of the roots should be removed with a clean cut, because the smooth surface will heal more readily than will the rough bruised surfaces. The tops should be shortened to correspond with the amount of roots. New branches will push out later as the roots develop. When the hole is prepared the roots should be spread out and covered with an inch or more of earth, which should be tramped firmly. The hole is then filled and after the earth has been tramped again, it is covered with a layer of loose earth to prevent the rapid evaporation which takes place when the hard surface is exposed to the air.

English writers usually recommend that gooseberries be trained in tree form, that is, with a single main stem for each plant, and that method is largely followed in the old country. On account of their neat symmetrical appearance such plants are well adapted to well cultivated gardens. A bush grown in this form does not produce suckers, and if it is broken off accidentally it can be renewed by letting new sprouts grow, but must be removed and a new plant set in its place. After they have borne five or six good crops it is generally best to replace them with new bushes, for they gradually become less productive than plants which are grown in the bush form, because the latter may be renewed from suckers whenever it is thought desirable to do so.

To grow bushes in tree form, it is simply necessary to remove all buds or eyes from the portion of the cutting or layer which is covered with earth in planting. No underground shoots, or suckers, will then be formed and the plant will have but one main stem or trunk. By annually cutting back new shoots to about three eyes and removing all weak or crowded branches the tree form may easily be kept in symmetrical shape.

For general purposes it is best to set plants that will send up suckers. The older canes which have passed their period of highest productiveness may then be removed annually and their places taken by young vigorous ones which have been allowed to grow for this purpose. By this method of renewal, the skillful grower may keep his plantation in a high state of productiveness for an indefinite period. Including the young canes, which are to be used for renewal as above suggested, there will usually be five or six canes to a bush, or even a greater number than this with varieties of the American class which have more slender canes.

Gooseberries generally require but little pruning during the first two or three years after they are planted, except to clip a few inches off from the strong new shoots and a less amount from the less vigorous ones. This may be done at any time after the leaves fall. The object is to favor the development of the fruit spurs all along the cane. If it is not done the strong buds at or near the end of the cane will start into such vigorous growth in spring that the lower buds will not start or will make but little growth, so that eventually most of the fruiting branches and spurs will be developed near the upper end of a long cane which when loaded with fruit is apt to bend nearly or quite to the ground.

Besides heading-in the bushes in the way just described the pruning consists in removing weak or broken branches and those which have made an excessively vigorous growth. Old canes that have passed the age of greatest productiveness, and branches that are close to the ground should also be taken away.

No definite rule can be given for pruning gooseberries because the kind and amount required varies with the individual habits and condition of growth of the bush. A little attention each year is necessary to keep the bushes in best shape for cultivating, spraying, fruit picking and for the free circulation of air through and especially underneath the branches. It is a mistake to think that the centre of the bush must be kept open to let the sunlight in as is sometimes advocated. In this climate the fruit may be ruined by such unnatural exposure to direct sunlight, and it is better to have it shaded by the foliage. Summer pruning is sometimes practised with good results. It consists in pinching off the ends of the vigorous shoots at the period of active growth in the early summer. The object is to favor the development of fruit spurs.

In the spring as soon as the ground is fit to work it is our practice to fork lightly into the soil the manure which was placed around the plants the fall previous. Shallow cultivation is given near the bushes, and somewhat deeper, perhaps three or four inches deep, midway between the rows. It is not well to disturb the roots by deep cultivation. Frequent shallow cultivation is given till about the middle of August when it is discontinued so that the growth may be checked and the wood become well ripened before winter.

The soil must be kept very fertile in order to secure annual heavy crops of fruit and still keep the plants in vigorous condition. At this station gooseberries are grown on a rather heavy clay loam, and stable manure is used for fertilizing them not only on account of the plant food which it furnishes, but also because of the beneficial effect in loosening the soil. One or two forkfuls of manure are given to each plant in the fall and turned under by shallow cultivation in the spring. For a discussion of the use of commercial fertilizers the reader is referred to Bulletin ninety-four of this station.

Agriculture in the Yukon Valley.

GRAIN GROWING NEAR THE OLD GOLD FIELDS.

Recently I met an intelligent man who had spent the past four years prospecting for gold in the Yukon Valley of Alaska, and I was rather surprised by the description he gave of that distant part of the United States. The winters in the Yukon Valley are not much different from those of northern Minnesota, in their influence upon the white man. The cold is more prolonged and severe, but the extreme dryness of the air, in a large measure, offsets this difficulty, and a man who has labored outdoors through a northern Minnesota winter, will not notice much difference in the cold of the two localities, in its effect upon his constitution. On the Yukon there are frequent periods during the winter when man must desert from all outdoor work, and the thermometer drops down to 70 degrees below zero, but I have, on several occasions, seen the mercury go as low as 60 degrees below zero, in Minnesota. From this it appears that the cold is not to be regarded as so great an obstacle to that region as it has usually been.

The Yukon Valley is so vast in extent that it is difficult to realize its size, and a very large portion of it is identical with the Red River Valley of Minnesota in formation and in soil. The upper terraces of that portion of the Yukon Valley which lies below the point where the river makes its exit from the moun-

tains, are immense level tracts of deep, rich soil which are only slightly broken at long intervals. So level, indeed, are these flats, that the eye can seldom detect any change in the surface on them, and a furrow 25 miles long might be turned, in many places, without a break. The Pacific Ocean exerts a profound influence on the climate of the valley, and the changes of the seasons are wonderfully abrupt and decisive. When the spring comes, the sudden disappearance of the ice and snow, and the bursting forth of green verdure are all but magical. The quick growth of plant life, and the perfection it attains, are truly remarkable. But it seems to be fully accounted for when the conditions of soil and climate that exist in the valley are understood. During the summer the ground never entirely thaws out. The surface is quickly released from the frost to the depth of four to ten feet, according to location and character of the soil, and this frozen state of the subsoil is the principal factor in the growth of plant life. The summer is one long day of three months' duration. The sun swings round in a circle, and is above the horizon from 21 to 24 hours each day, so that, for this lengthy period, it never becomes dark, and the ground has no chance to chill; no frost falls, and the thermometer ranges from 90 degrees upward, in the sun, during these three months.

Again, the dryness of the air renders this prolonged, excessive heat as easy for man to withstand as a 75 to 95 degree temperature in Minnesota. It is seldom that rain falls during this short but potent summer, and storms of wind and hail are unknown. But the more prolonged the drought and heat may be, the quicker and more perfect is the growth of all plant life present, and the wide valley is clothed in deepest green during these summer months. The secret of this is that an abundant supply of moisture is furnished by the frozen subsoil, that slowly thaws and steadily releases the water stored in it, which is brought to the surface through the channels of capillary evaporation. This moisture is but slightly above the freezing point when it is absorbed by the roots of the growing plants, and it must exert a highly beneficial influence by counteracting the fierce heat that steadily assails the surface of the ground. Under these peculiar conditions of the natural forces of Nature, it is easily realized that a number of our staple crops will succeed and reach perfection in the Yukon Valley. Scotch Fife wheat produces enormous yields of the very highest grade of that grain, which has been proved, by test, to make the best class of fancy patent flour. Barley and oats, potatoes and roots of all sorts, and many of the garden vegetables, also reach surprising perfection. In the case of barley grown in the Yukon Valley, the malt makers would likely find the very highest grade of grain for their use, which might soon take precedence throughout the world. The growing barley would not be subject to the vicissitudes it is in the States, and especially it would escape the injury from rains during harvest and when standing in the stock, which lowers the quality of this grain more than any other.

There are already a number of small farms in the valley which have been opened by disappointed gold seekers, and it is from the results secured on these that I have drawn my most trustworthy information. These farmers are reaping a rich harvest of dollars. The miners stand ready to pay high prices for vegetables, and even for grains, which they grind into coarse meal for bread. This is the golden side of the picture of prospective farm life in that semi-polar region.

But there is a darker side to life in that far northern country, which will likely appear to those used to the comforts of farm homes in the States as insupportable. The long, cold winter with its constant night of nearly three months, when the landscape is wrapped in deep gloom, and when only a faint flicker of twilight and the charming play of the aurora borealis, shining on the white snow, reflect a faint, uncertain light, is likely to give a dubious aspect in the Yukon country. This dismal and dangerous period of the year, coupled with the incredible swarms of mosquitoes and flies in the summer, which make it impossible for horses or cattle to exist, seem to outweigh the favorable features of the valley. Mules and the reindeer will be the beasts of burden in that country if it be ever brought under cultivation. Sheep and hogs will, no doubt, be easily acclimated and goats may take the place of the cow. The reindeer is a very valuable animal; it makes an excellent beast of burden; furnishes good meat; is easily reared, and is in its native home in that climate, and will take the place of the horse and the ox.

If, however, a railroad should be built to connect the great Yukon Valley with the commercial world, and wheat, growing proves to be a profitable business there, the world would likely be done mostly by steam. There is plenty of coal in all districts of the valley, which will furnish cheap fuel for every purpose. On those great flats a traction engine can run a gang plow, turn-

ing furrows miles in length, and fields of 50,000 or more acres of wheat would likely be a common sight. The people could live in villages, for mutual protection, and in the spring, summer and fall, carry forward their farm work on the largest scale. Here the bonanza farm would find its true sphere, with room for all who wished to enter that class of business, and the great Yukon Valley could be made to supply the wants of the world with the very highest grade of wheat, that would, no doubt, command a better price than that of any other country. Neither are we to presume that this is a painting of the fancy. It will likely become a reality at no distant date.—W. C. B., in Rural New Yorker.

Early Ripening of Fruit.

It is not difficult to so manipulate a branch of a peach, pear or apple tree as to cause it not only to ripen its fruit ten days or more in advance of the ordinary season, but to greatly increase its size, so says a writer in 'American Gardening'.

Trees take in their food from the soil; minerals dissolved in water, which passes from cell to cell through the center of the tree until the leaves are reached, where it is digested, so to speak, and is combined with carbon from the atmosphere and the assimilated food passes downward through the wood cells and developing the fruit. Now if we check the downward flow of the sap by pressing the bark it throws the food back and the fruit appropriates it, causing an abnormal growth and speedy maturity. This can be readily done by twisting a small wire tightly around the limb just below the fruit. It is better to remove all but the one specimen and great care must be exercised not to get the wire so tight as to rupture the bark and thus destroy the branch. It only requires a slight compression to accomplish the work. After the fruit has matured the wire must be removed. Grape growers who practice "ringing" understand this to perfection. They cut out a band of the bark about a quarter of an inch long just below the cluster to be affected. It then appropriates all the resources of the shoot and often more than doubles its size, but the limb must be cut out at the next pruning, as the girdling kills it. It often happens that a young tree will not develop fruit buds, but such can be made to do so by suddenly checking its growth when its wood buds are about half formed so as to cause them to develop into fruit buds. A fine wire is twisted around the body of the tree only once and left two or three weeks in July and August so as to cut off the downward flow of sap. The same effect can be accomplished by a straight, thin cut directly around the tree, nearly severing the bark. It will draw apart and fill with gum, quickly healing; but the check is secured and a good crop of fruit sure for the next season. This should be done not later than the middle of July.

If any contagious disease has appeared in the stable, then it should be thoroughly disinfected. Evil micro-organisms are so plentiful in a filthy stable that it is impossible to even get one milking from a cow within it without having the milk well charged with those destructive, invisible organisms of evil portent.—Dr. Galen Wilson.

Sales Talk

With Hood's Sarsaparilla, "Sales Talk," and show that this medicine has enjoyed public confidence and patronage to a greater extent than accorded any other proprietary medicine. This is simply because it possesses greater merit and produces greater cures than any other. It is not what we say, but what Hood's Sarsaparilla does, that tells the story. All advertisements of Hood's Sarsaparilla, like Hood's Sarsaparilla itself, are honest. We have never deceived the public, and this with its superlative medicinal merit, is why the people have abiding confidence in it, and buy

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By using a HOME REPAIRING OUTFIT. You can do your own hair-soling Boot, Shoe, Rubbers, Harness and Tinsmithing. Repairing out. No. 1, complete, 39-1/2 inches, only \$2.00. Outfit No. 2, same as No. 1, except Harness and Tinsmithing, only \$1.50. Order direct or write for circular. P. B. McCORMACK, New Concord, Ohio. N. B.—Agents wanted. Liberal Terms. Box 17.

SEPARATOR BARGAINS I have on hand and for sale a large number of SECOND HAND CREAM SEPARATORS. Of various sizes and different makes. These machines are in first class condition, having just come from the repair shop. Address P. O. BOX 856, Philadelphia, Pa.

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THE MONARCH INCUBATOR. Most practical machine in the market. All large New England poultry growers use them, many firms using from 15 to 25 of the 600 egg size. \$5000 barrels of dressed poultry marketed each season, from within a few miles of our factory. All hatched in Monarch incubators. Send stamp for illustrated catalogue. JAMES RANKIN, SOUTH EASTON, MASS.

FARMS - IN - Dedham and Milton From \$2500 to \$15,000. Well Located and near Steam and Electric Lines. APPLY TO - J. A. WILLEY, 178 Devonshire St., Boston.

Milton Farms. ONE OF 5 ACRES. Excellent buildings, very desirable location, high and slightly. Situated on Blue Hill ave. Price \$5000. ONE OF 10 ACRES. This will please anyone. Perfect land, fine buildings. Price \$6000. LITTLE HOME OF 1 ACRE, good house and several henhouses. \$2000. ONE OF 16 ACRES, good buildings, finely located. \$6000. ONE OF 75 ACRES, 3 houses, all well rented. A fine farm barn; plenty wood and timber. \$8000. ONE 175 ACRES. Very productive farm, good set of buildings. Carry on at present 30 head of stock. Plenty wood and timber. Price \$12,000.

WANTED. Wanted—Small farm with good buildings, to Essex Co. or southern town N.H., not over 2 miles from R.R. station, and line of through service to Boston. Send full particulars and price to address below. J. A. WILLEY, 178 Devonshire St., Boston.

FARM WANTED To rent, with privilege of buying, 30 to 50 acres, within 30 miles south or west of Boston. Must be convenient to school and station.

Situation Wanted. By married man, with no family, as Farm Manager. Must be experienced in care and management of all kinds of stock for profit, and up to date in dairying and breeding cream. Apply to J. A. WILLEY, 178 Devonshire St., Boston.

FULLY EQUIPPED MILK ROUTE of 40 cans daily; 25 cows, and real estate included. J. A. WILLEY, 178 Devonshire St., Room 202, Boston, Mass.

METAL WHEELS. In all sizes and varieties, to fit any axle. Direct lost forever. Either direct or staggered spool. Can't break down; can't dry out; no resetting of tires. Good in dry weather as in wet weather. Send for circular & prices. ELECTRIC WHEEL CO., QUINCY - ILLINOIS.

Dairying for Profit, OR THE POOR MAN'S COW. For 15 cents. We have made arrangements with the publisher to furnish our subscribers with this valuable little book for 15 cents. The book, "The Poor Man's Cow," is one who has made a success in this line and knows what she is talking about. She writes in a concise, practical way, treating only of what she has learned in her own experience, which has been a long and varied one, and covering fully the whole subject. Any of our readers who keep cows, whether one or one hundred, will do well to read this book. Send fifteen cents to the MASS. PLOUGHMAN OFFICE, Boston, Mass.

Drunkennes Is a disease. It can be cured without the knowledge of patient. We guarantee a cure or no pay. A skillful physician in charge. Treatment and accommodations strictly confidential. Write DR. DICKSON, Box 2608, Boston.

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FOR SALE. F. A. J. C. C. Cows and Hens, also grades—both of the combined blood of SIGNAL and that of ERIE and SOUTHERN PRINCE. The grades from cows selected for the combined quantity and richness of their milk. Both thoroughbred and grades have been made on fair grounds from one day's milk over two pounds of butter from 27 and 28 pounds milk.

HEADQUARTERS for 2 and 4 Wheel Dumping Horse Carts Wide and Narrow Tires Steel Axles. Low rates of freight from our works, Tatum, Pa., to all points. HOBSON & CO., No. 6 Stone St., New York.

It is a significant fact that responsible dealers sell and responsible painters use Pure White Lead (see list of genuine brands) and Pure Linseed Oil. They know their business. Those who don't know, try to sell and use the "just-as-good mixtures," "so called White Lead," &c., &c.

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Farms for Sale.

INVESTIGATE THIS—50 acre productive farm, in a high state of cultivation. Will easily keep 20 head of stock, and has accommodations for 500 hens. One 2 story house with oil, eleven rooms. One cottage house with basement. Three barns 30x40, 30x20, 25x25; carriage house 16x16, tool and carriage house 12x20, wood and storage house, 18x25, 8 poultry houses 37x12, 25x8, 15x8, all buildings in good repair. 12000 ft. water at barn from never failing spring. Over 100 apple, 60 peach, 15 pear, 12 plum trees, extra fine vineyard of 140 choice vines. A fine lawn and magnificent shade trees, making it an attractive home. To electrics. Stock and tools include 7 extra fine cows, 1 horse, 250 hens, about 200 chicks, about 500 tons hay and oats, top buggy, democrat, press and farm wagon, sled, new sleigh, single and double harnesses, plows, harrows, cultivators, horse corn planter, hand plow, 7 corn sheller, grindstone, wire press, horse rake, mowing machine, horse power, saw, pump, and painted, bars, forks, chains, stone drag, ladders, etc. There is also a 30 ton silo. Cottage now let to good tenant. \$8000 will buy the whole place, but fair price if purchaser wants farm only, or will sell all for \$20000 with 10000 cash balance on mortgage. 27 miles from Boston and reached by two lines of R.R.

FRUIT AND STOCK FARM, 6 miles to Lowell from Boston on county road. Farm contains 70 acres. 4-1/2 fine dairymen's houses, 12 acres raspberries, 1 acre blackberries, 2 beds strawberries, 300 peach 3 and 4 yrs. old, besides other fruit. 2-story house 8 rooms, 2 large parlors, 4 light windows, piazzas and bay windows. Fruit yard running with road, mostly fruit trees, with two set boilers. Barn 60x38, 18 tie up stalls, fine cellar with 24 ft. space divided off for apple cellar, barn chapel, and painted, 2 poles and vane. 2 henhouses, 12x24 and 12x36. Two years supply of wood in shed. Cuts 35 tons of hay by machine. Price \$6000.

ESTABLISHED CREAM AND MILK BUSINESS. Supplying finest grade brand. Intervale farm 130 acres, finest of grass land all under drained, free from stone. All buildings in good repair. 12 rooms, 12 rooms, painted white and blinded; all and poultry, with 7-1/2 acre of land, 100 tons each. Stock barn 40x48, 18 ft. post, creamery in one part, 20 tie up stalls, 4 stalls. Water from spring 20 ft. above barn. House 8 rooms, house and barn (new pipe); henhouse 2x20. Up-land orchard, 300 apple trees, mostly fruit trees, 30 yrs. old; large variety other fruits, all kinds. Winery of '96 and '97 kept 24 head and 3 horses. Found near house supplies of 1000 lbs. of cream per week are sold at 15 cents; a ready sale for all milk at 10 cents per can. Will sell 21 cows and pair horses, barn, and large wagon, one "Farmer's Handy Wagon," machine hay rake, 3 harrows, plows, cultivators, and other tools, etc. ex. wagon, all small to 10 for \$5000; \$20000 can remain at 5 percent, or will sell farm above for \$4500.

WORCESTER CO. FRUIT FARM, near good markets. 7 acres in all; 3 acres set out to apple and peach; 200 apple and 400 peach 4 yrs. old, in fine condition; raspberries and blackberries returned; 1000 lbs. of soil a nice black loam. Cuts 30 tons hay. Large house, painted and blinded, wood shed, wagon, and horse power, 20 tie up stalls and 2 stalls; running water 24 feet above barn. Large elm front house 24 feet above barn. Electric to city. Price \$2000. \$700 down. Particulars of A. J. BARNARD, Acton, Mass., or at this office.

COST \$2000 TWO YEARS AGO, now offered for \$3000. Owner a waiting man and does not want it. There is 1500 cords of hard wood ready to cut and worth 85 cents per cord on the market. Land all worked by machinery. 9 buildings, all in best of repair, newly shingled and painted. Fruit for home use, all varieties. House 8 rooms, barn 60x50, shed 120x20, 2 hen houses, etc. Horse, wagon, cart, harness, 25 tons hay in barn, 20 tie up stalls, all included. 2 miles from stores, church, P. O. and station; 5 miles to city of 25,000; 7 miles to city of 50,000; 10 miles over an hour's ride from Boston. Terms made easy. Will exchange.

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Some New Hampshire Farm Bargains particulars of which can be had on application at this office or of E. H. Carroll, Warner, N.H.

ONE OF 120 acres—keep 15 to 20 head. 1 1/2 story house, 10 rooms; barn 40x50. Very productive. Only \$1300.

ONE OF 75 acres. 8-room house; barn 30x40. Price \$700.

A PLEASANT little village place, 3 acres. New buildings, free public library and high school. Price \$1800.

A SIXTY FIVE ACRE FARM.—6-room house, barn, shed and outbuildings. \$700. One-half cash.

427 ACRE FARM—advertised elsewhere in PLOUGHMAN.

ONE OF 400 acres, with fine set buildings, and a established summer boarding business. \$4500. See "ad." elsewhere in the PLOUGHMAN.

Farm to Rent. 60 ACRES suitably divided; land in good state cultivation; 1/2 acre strawberries, 1/2 acre raspberries in bearing condition, besides plenty apple, peach, pear, plum, and cherry trees. 8 room house, woodshed and carriage house connected; large barn and hen house; 150 hens, pigsty and ice house, all in good, productive condition. 2 1/2 miles from depot and P. O., and only 4 or 5 miles from city of over 5000 population. 28 miles from Boston. Will rent all or part to responsible parties for a very moderate rental. Apply to J. A. WILLEY, 178 Devonshire St., Room 202, Boston, Mass.

Owners of Farms If You are desirous to SELL, RENT, OR EXCHANGE Your farm, WITH OR WITHOUT privilege of buying, now is the time to list them with us. We are constantly having calls for such, and make a specialty of FARM PROPERTY. Send full particulars to MASS. PLOUGHMAN OFFICE,

POULTRY.

Duck Culture.

The white musk duck is liked by some as a market duck, its flesh being very fine and juicy, but its habits make it a very disagreeable fowl to have round the premises. It kills young ducks and chickens, and will not grow as quickly for market nor bear confinement as well as ducks of other breeds.

In selecting breeding stock of any variety, get the best as your profits depend largely on this. I once made a great mistake in my selections. I purchased late in the fall some breeding pens of young ducks, selecting the choicest specimens. I gave them the best care, and they thrived. They began laying early, producing an average of one hundred eggs each. The first hatch was 80 per cent fertile eggs, and the second produced 350 strong ducklings, out of less than 400 fertile eggs. The next hatch ran down to 185, and the next to 150, and the last hatches were very poor. Thinking I was not running the incubators right, I put some eggs under hens and ducks, but found that the incubators did by far the best. On investigation, I found that I had bought ducks hatched from ducks that had laid about 100 eggs before laying the eggs that produced my breeding stock. I had been using stock whose vitality was impaired, and they soon imparted it to their eggs. Consequently, the germs had not strength enough to carry them through the four weeks of incubation. Though the eggs were well fertilized, the ducklings soon began to die in the shell at all stages.

In raising I select the best ducklings while growing up. To improve the size and vitality of the flock, select ducklings with long and broad bodies and long necks and finely shaped heads. Feeding to get the best results is very important. Too liberal feeding is worse than not enough, as it sickens the ducks and impairs their system. I feed old ducks until laying time principally on wheat bran, with some vegetable food, a little whole grain once a day, as they must have soft food principally. The food should be made bulky and light. As the season begins, make the food heavier, decreasing the amount of bran, giving more meal and add ground beef scraps, with grain of different kinds. Feed only what is required at each meal. Cabbage is an excellent green food at any time of the year.

In mating I generally use five ducks to one drake, but sometimes use more or less, according to the vigor and vitality of the birds. I find that ducks fertilize as well as if they had access to deep water. Their wild habits have been bred out of them by artificial means of raising—especially in the Pekin.

If Pekin ducks are well fed and kept warm, they should begin laying by February 1st, sometimes sooner. But they must not be too fat or be wintered on too much hard food. To those who intend to use incubators for hatching ducklings, I wish to give a few words of warning. There are only a few kinds of incubators suitable for duck eggs. The shell of the duck egg is so porous that any incubator with a current of air passing through it is certain to use up the moisture within the egg, so essential at the latter part of the hatch. While it is necessary to have a little air, too much is worse than none. An incubator that maintains an even degree of heat and has arrangements for plenty of moisture at hatching is the only kind to rely on. After the incubator has run a few days and maintains an even degree of heat of 100 degrees at the bottom of the egg tray, I put in the eggs at sundown, as it takes all night to warm them up. The next day I keep watch of its working not forgetting that 100 degrees at the bottom of the tray is equal to 102 at the top of the eggs. I test the eggs on the fifth day, and remove all clear eggs, and also those whose germs have started and cease to grow. It is well to make another test on the eleventh day, and remove all eggs that have become added.

On the sixth day you can see the heart beat and the spreading of the veins through the egg. You will find in some a clot of blood and a circular vein, nearly the size of the egg, have been formed. These are of no account, and should be removed. I use a cheap tester—simply a board a foot square, placed in front of a lantern, with a hole opposite the flame, about one-half the size of an egg. The light can be increased in power by placing a reflector at the back of the lantern. A correct thermometer is of the utmost importance. No matter how good the incubator, if the thermometer is poor you will not be successful. Get the kind made for incubators which are so constructed that the glass bulb does not touch the metal frame. Be sure that the bulb rests on a fertile egg, or you will destroy a hatch. The difference between the air in the egg chamber and the register of an egg containing a live duck is at the last stage as much as five degrees. An egg containing a dead duck is from three to five degrees colder than one containing a duck almost

A Profitable Cream Separator.

Money put into a SAFETY HAND CREAM SEPARATOR will make about one hundred per cent profit every six months, while money invested on mortgage yields but six per cent. per annum. The intelligent dairyman will draw his own conclusions from this. A separator may be run profitably for as few as five cows. Anyone can operate it.

P. M. SHARPLES,

West Chester, Pa.; Elgin, Ill.; Rutland, Vt.

ready to break the shell. The best place to put an incubator is in the cellar. A separate underground cellar is the best, as insurance companies object to taking risks on buildings occupied by incubators. In operating incubators successfully, an even temperature is necessary for several reasons. Letting in cold draughts of air on an incubator full of eggs is sure to kill many. I think the true way in hatching chicks is to keep your incubator closed, as a chick that cannot liberate himself is of no account. But a duckling pips 24 to 47 hours before it is ready to come out, and you are obliged to open the incubator about eight hours to turn up the pipe, as the ducklings are apt to smother or drown in the slime of the egg.

In an incubator full of eggs with live germs, you will find that at the latter stage it is impossible to keep down the animal heat. Do not open the ventilators or doors to cool down the eggs, for you will then lose the moisture and make the shell brittle, and the inside lining of the egg will become tough. While spraying the egg is injurious, my experience and that of Mr. Rankin and others shows that it comes nearest to the correct plan, as a superfluous heat is sure to destroy the hatch. Open one door immediately. In this way no chill will strike the eggs. A sudden change of a few degrees is enough to kill them.

After a duckling begins pipping they usually rest and the temperature begins to lower, but I think it should be kept up. Trying to help a duckling after pipping is very injurious, unless carefully done at the right time. Removing the lining and shell before they are ready to come out injures the blood vessels, causing the duckling to bleed and to weaken. If they pip at the small end of the egg or in the centre, they need a little help, say about 12 hours after; but should have only a little help at a time, and should be placed at once in the egg chamber. If they are very large or deformed, they will often break the shell partly around and die without any apparent reason. In trying to help them, too often you injure the hatch by letting in too much air in the egg chamber. I find those that hatch behind time of little value, hardly worth bothering with, and I place under hens to bring out.

If you have an incubator with an air chamber below, drop the ducklings below when dried off, but it is a mistake to take away chicks or ducklings until the hatch is completed. Mr. Rankin says that for every fifteen chicks or ducklings that you remove, you lose one degree of heat in the egg chamber. You will find that the water in the moisture pans or tank is not as warm as the temperature of the egg, which shows the importance of placing the thermometer on a live egg.

After the hatch is complete open the ventilators and let down the outside doors, and let the ducklings remain without food until the next day, as nature provides all food required in the yolk. — Correspondent of American Stock Keeper.

ABOUT FEEDING.

A California farmer, who is making his hens pay, gives the readers of the Rural New Yorker some wise hints on buying foods and on methods of feeding. He says:

"I buy now food stuffs cheap that I formerly thought were of no value for poultry. Generally, I am able to get beans at 7¢ to 8¢ per ton; these are ground with oats for \$3 (grinding price) and \$13 to \$15 per ton for oats. This with a little corn, and 50 per cent. of bran and middlings at \$13 to \$19 respectively, constitutes my general grain bill, with occasionally a little linseed cake for a change. Alfalfa and wild clover are growing all over the orchard until they are killed by the cultivator in May. Fifteen hundred cabbages, two tons of potatoes, and two and one-quarter tons of carrots and rutabagas are also raised for their sole benefit. One hundred pounds of boiled horse meat per week, and sometimes a little wheat, constitutes their bill of fare. Wheat, however, is now too dear, so I use a good deal of barley. We (for there are two of us, wife and I) raised last year nine hundred and eighty broilers and two hundred and eighty-eight Pekin ducks. Our incubators hatched forty-four hundred fertile hens eggs, so by the above you will see that seventy-five per cent. died, raising only twenty-five per cent. to market size. Of ducks we raised thirty-three per cent; but unless young ducks can be ready for market by February, when the price is from \$6 to \$6.50 per dozen, it does not pay. In

the summer months ducks are worth only \$3 per dozen here. Although we still raise some ducklings, we depend on broilers (large size) to pay the bill from January to June.

"If I wish plenty of eggs from my Leghorns, I feed them soft food every morning, give them a free run in alfalfa during the day, with barley, wheat and little corn for supper. I keep roosters running with them, as it has a tendency to make them attend to business and start in early after moulting; in fact, some time before this process is completed. These birds are all kept roosting in the poultry house. My breeding stock for broilers consists of selected hens, purebred P. Rocks and others having more or less of the same blood, or W. P. Rocks or Wyandottes. These hens have all been selected because most of their eggs hatch well, and the chicks grow rapidly. I have bred most of them, if not all, on the place; they are two to three years old, weigh from six to six and one-quarter pounds each, and are more or less of a pugnacious disposition, and I have seen five of them killing a three-foot gopher snake, and afterwards disabling another over the spool. They are in five flocks of ten and a rooster to each flock.

"They have soft food but once a week for a change, and very little of that; other mornings they have a little oats or other screenings. Twice a week they have three pounds of lean meat. At night they have all the corn they can pick off the cobs, and they roost in the house with the open latch front. The roosters are purebred P. Rocks bred by myself, or bought of farmers who have their hens running over the fields and woods without giving them very much attention. But the breed must be pure W. or B. P. Rock or W. Wyandotte. The survival of the fittest among such a flock is worth having, if he weigh seven to eight pounds. We always have two or three young roosters extra for the purpose of forcing a sitting hen into business humor again.

"These hens of mine go running in the orchard or woods; they keep a little distance from other flocks, and they return at night able to eat about seven pounds of corn from the ear. By the months of April or May, or whenever the nights begin to get warm, they get barley or wheat instead. To induce them to moult early we give them all the ripe fruit they can eat, and a sitting of eggs when broody about August or beginning of September. They will rear a clutch of chicks, moult, and begin to lay again by November. I admit that they want to incubate for every fifteen or twenty eggs they lay, but they are at once consigned to the tender care of a young rooster, and in a short time they are ready to join their flock and begin to lay again. I find that, by keeping these hens in the cooler roosting house they get hardened, producing a more vigorous constitution which they transmit to their offspring."

Sheep Notes.

It rarely happens that a ewe having a full udder will refuse to own her lamb. Previous to lambing a day or two, those ewes showing advanced stages should be placed away from the rest of the flock in a quiet box stall where they may take care of their young. In the last five years we have had no trouble about ewes not owning their lambs. We have several cases where we take a twin or triplet and put them to another ewe and get her to own it by milking her own milk upon the youngster till it is pretty well wetted, let her smell it and then she will likely own it—at least after repeating the treatment a time or two. The ewe refusing her lamb may be shut up in a close box with slat removed at bottom so the lamb can suck and she cannot turn around or hinder it. Or she may be tied up securely by a halter or kept in a dark place or you may bring her to own it by bringing a dog into her presence. I never saw a ewe that would never own her lamb. If I had such a one I should fatten her and sell her to the butcher.

The following simple rules may be useful in determining the age of a sheep, to those who have no fuller means of learning. At about a year old two permanent incisors appear, two large teeth in the fore part of the lower jaw. This indicates a yearling. The English court of law decided that a lamb is changed into a sheep when these teeth appear. At about two years old a sheep has four permanent incisors, or four big teeth in the middle of the lower mouth. These frequently appear at twenty months of age. The writer has known a two-year-old to show a yearling mouth, and a yearling to show a two-year-old mouth. At thirty months there are six large permanent incisors, and at forty months there are eight permanent or large incisors indicating a "full mouth" or a four-year-old sheep. Extreme age is indicated by the teeth looking like shoe pegs, i.e. round and long, and by a "broken mouth," losing the teeth. — Farmer's Guide.

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APIARY.

Overstocking a Locality with Bees.

This is a subject that has been much discussed among the bee-keepers of the East, says Prof. A. J. Cook, in American Bee Journal. Dr. Miller for years argued persistently and forcibly for such measures, legal or moral, that would give each bee-keeper the exclusive control of his territory, and free him from the danger of others coming to trespass—if we may use so harsh a term—upon his domain and rights.

Mr. James Heddon urged exclusive possession, on two grounds: The new comer had no right, under the Golden Rule, to inflict his presence upon the one already established, and, besides this, it was supreme folly to do this—the resources would not give thrift to two parties in close proximity, and it stood to reason that the one in the field would have the vantage ground over the new comer, and while he would lose by the intrusion, the other would surely go the wall.

In the East, no one denies the proposition that a region may be overstocked, without it be one of the fortunate ones in the vast basewood forests of Wisconsin, and no good bee-keeper would think to locate in the immediate vicinity of a large apiary. It has been generally held that one hundred colonies of bees—the number that one person can care for well—were the maximum quantity for the average locality. This proposition seems to rest firmly on experience and reason alike. There are only so many flowers, and each flower contains only so much honey. It stands to reason, then, that an excessive number of bees would, per force, receive but a scant harvest.

In California, the proposition does not find such ready acceptance. I suppose everybody accedes to the logic just offered, and believes any region could be overstocked, as a sound mathematical conclusion. But when hundreds of colonies of bees are mashed in a single apiary, and a hundred or more pounds of honey secured from each colony, as is the common experience in this favored clime in all good seasons, then many of our best apiarists shake their heads whenever we speak of overstocking in southern California.

One of our largest, most intelligent, and most successful southern California bee-keepers, who has nine hundred colonies of bees, and has harvested over fifty-three tons of honey the present season, expresses some scepticism as to overstocking in this region, and surely he would seem to have some ground for his doubts. Others have spoken to me in like mood.

Another very prominent bee-keeper, who two years ago with less than six hundred colonies—I think about five hundred—to commence the season, where were increased to six hundred, took over thirty tons of extracted honey. This year, with the same number, he secured only sixteen tons—explains his lessened crop on the very ground of overcrowding. Two years ago his occupancy was exclusive; this year another bee-keeper came to share the fruits.

Why is it thus? It seems to me that there are two reasons for this peculiarity in southern California. First, there is a very long season of flowers and nectar secretion. The early bloom—eucalyptus and citrus—while it does not crowd the combs with honey, does give enough to stimulate breeding and secure splendid colonies by the time the late more prolific bloom carpets the plains and hillsides.

Again, the sages—the great source of the magnificent honey of southern California, better than which none is produced in any land or region—are not only very bountiful in their secretion of nectar, but are also very long in bloom, as are nearly all the plants of California. Thus, they are like the basswoods in producing immense quantities of the best honey, and greatly superior to the basswood in nearly or quite tripling the length of bloom of the Linden.

I have heard some of the old bee-keepers of the Linden regions of Wis-

consin question the possibility of overstocking. This came from their own experience. The innumerable blossoms, and the generous nectar-drop in each bloom resulted in a tremendous harvest. The Californian, who is so fortunate as to be encircled with rich fields of sage and wild buckwheat, has even more to give assurance in the phenomenally long season of bloom. Los Angeles Co., Cal.

Application of Fertilizers.

Probably there is no better fertilizer for fruit trees than a mixture of muriate of potash and ground bone (one part of the former to one and a half parts of the latter.) A good practice is to apply this mixture to clover or some other leguminous crop which is turned under as green manure, and, in addition, where tobacco stems can be obtained cheaply, to apply these about the trees. Wood ashes or cotton-bull-ashes may be substituted for muriate of potash if these products can be obtained at reasonable prices.

In deciding upon the kind of manure to use the character of the soil must, of course, be taken into account. Crops grown on soils poor in decaying vegetable matter (humus) are, as a rule, benefitted by applications of nitrogenous manures, while those grown upon soils well supplied with this substance are more benefitted by phosphates and potash. Upon heavy soil phosphates are likely to be more beneficial than nitrogen, while the reverse is the case on light, dry soil. All sandy soils are, as a rule, deficient in potash, while clayey soils contain this element in larger quantities.—Our Gardening.

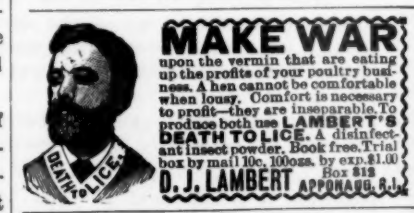


When a woman falls overboard she sometimes drowns when there is a life buoy just within a few strokes of her—all because she doesn't happen to see it. Sick people often perish in the same way. Help is within reach, but they don't know just where it is. They become discouraged and disgusted with taking medicines and give up in despair. Mrs. Mary J. Stewart, of Saratoga, Santa Clara Co., Cal., in a letter to Dr. R. V. Pierce, chief consulting physician of the Invalids' Hotel and Surgical Institute, Buffalo, N. Y., says: "I suffered for fourteen years with female weakness, nervousness and general debility, trying everything I could find to help me—all to no avail. Although I was thoroughly discouraged and disgusted with taking medicine when I heard of Dr. Pierce's medicines, I thought I would try once more to find relief. I took the 'Golden Medical Discovery' and 'Favorite Prescription,' and two great pains came given for the rapid relief they gave me. I am now free from the former troubles, and may God bless Dr. Pierce in all his undertakings to cure suffering humanity. Thousands who have reached this forlorn and hopeless condition of body and mind have found new hope and rescue in the use of these marvelous remedies. Dr. Pierce's great thousand-page book, 'The People's Common-Sense Medical Adviser' is sent free in paper covers for one-cent stamps to pay cost of mailing only; or, cloth-bound for 25¢ stamps. Address, Dr. R. V. Pierce, Buffalo, N. Y. Rev. J. K. Thompson, of East Calais, Washington Co., Vt., writes concerning this great work: 'I am charmed with the style and general subject matter of the entire work. I consider it a valuable addition to my carefully selected library. The purpose to act men right physically is a noble one. I am also pleased with the refined and at the same time fearless way in which you handle those delicate subjects pertaining to biology, thus making the work admirably fitted for the young.'

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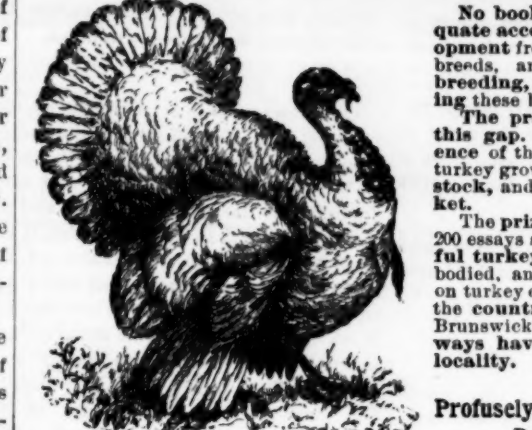
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PROVIDENCE LINE FOR NEW YORK AND ALL POINTS SOUTH AND WEST RESUMED PASSENGER SERVICE MAY 10, 1897. Steamers "Rhode Island" and "Massachusetts" in Commission. FROM BOSTON: Steamboat Express with Parlor Cars leaves Park Square Station 6:45 P.M., daily, except Sunday. FROM PROVIDENCE: Steamboat Express Train leaves Union Station 6:12 P.M., daily, except Sunday. FROM PROVIDENCE: Steamboat Express leaves Fox Point Wharf 8:00 P.M., daily, except Sunday. Due New York 7:00 A.M. Returning leave New York at 5:30 P.M. from New Pier 36, N. R. J. W. MILLER, O. H. BRIGGS, President, W. DEW. DIMOCK, Asst. Gen'l Pass't Agent.

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MASSACHUSETTS PLOUGHMAN

BOSTON, SEPTEMBER 11, 1897.

Persons desiring a change in the address of their paper must state where the paper has been sent as well as the new direction.

The grain arriving at Chicago in one day last week required forty miles of track.

The Armour Packing Company are preparing to establish a packing house at Denver, Col., to supply the western markets.

Belgium supports 6,000,000 people upon an area about as large as the State of Maryland. Many of the farms are only two acres each; mostly reclaimed marsh land.

In order to get a warm place of ground for early vegetables, provide artificial protection from the cold winds, if it can be had in no other way, by means of high fences or a screen of evergreens.

It is estimated that at best this year's corn crop will be considerably less than last year's and the year before. There is an unusually large area of late corn this year which needs three frosts of hot weather to ripen it; early frosts are especially to be feared.

Keep the stable dry and clean and the air sweet and pure; for this purpose there is nothing better than a little plaster sprinkled over the floor behind and under the cattle. It pays both in neatness, and in catching that most elusive and valuable portion of the manure, the ammonia.

Secretary of Agriculture James Wilson, has traveled extensively throughout the Rocky Mountain region during the past four weeks investigating various subjects connected with agriculture and stock-raising in the far West. Horse-breeding on the range, sugar-beet culture in the southwest and irrigation were among the questions especially engaging his attention during the trip.

It has been a common idea that the Chinese and Japanese, if not vegetarians, were addicted solely to a grain and vegetable diet. This idea must now be abandoned, at least as far as the Japanese are concerned, as the Armour Packing Company, of Kansas City, Mo., are filling an order for 1,500,000 pounds of beef for the Japanese government. This is to be shipped via St. Paul and Vancouver.

The Secretary of Agriculture complains that his department is pestered with communications from individuals interested in getting the tenor of crop reports before they are put before the public, in order to forestall the speculative markets—another proof, if proof were necessary, of the nefarious character of option dealing generally. The department is determined, if possible, to stop the leaking out, unfairly, of the information which it gathers for the public, at the expense of the public, and not for private speculators.

Owing to the fact that cases of typhoid fever have lately been traced directly to the milk supply, the Massachusetts Association of Boards of Health has lately been discussing the best methods to be employed to insure the purity of the milk supply. The health authorities claim that many of the contagious diseases and a large number of cases of cholera infantum in Boston are caused by the milk supplied the city, and an investigation is now being made of the places in Boston where milk is sold, with especial reference to small groceries and notion shops. In addition to this, a committee was appointed by the Massachusetts Association of the Boards of Health to report upon the methods of improving the milk supply and the report made through the chairman, Professor Sedgwick of the Institute of Technology, contains the following:—

"The object to be attained is the greater purity of the milk supply. The essentials to the attainment of this object are improvements at the sources of supply and in handling the milk. The method to be adopted is that all local dealers in milk be licensed by the Board of Health; i. e., the business shall not be carried on without such license, the following rules to be observed in granting such licenses:—

"1.—No license shall be issued except on declaration by the proposed licensee of his sources of supply.

"2.—No license shall be issued unless all sources of supply so declared conform to a certain standard. This standard might well be fixed by a vote of this Association.

"It is further recommended that a system of state inspection be instituted and that all milk, as far as possible, be subjected to Pasteurization before being sold."

If these recommendations should be carried out, it would mean a decided change in the method of handling milk throughout the whole state.

STATE OF OHIO, CITY OF TOLEDO, Lucas County.

FRANK J. CHENEY makes oath that he is the senior partner of the firm of F. J. CHENEY & Co., doing business in the City of Toledo, County and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of H. L. L. CATARRH CURE.

Sworn to before me and subscribed in my presence, this 6th day of December, A. D. 1896.

A. W. GLEASON, Notary Public.

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CURRENT TOPICS.

Dr. Nansen, the Norwegian Arctic explorer, is to visit New England in November, and the Boston Norwegians are making great preparations for his suitable reception and entertainment. It is said that he will make at least \$150,000 out of his book.

The high price of wheat is felt in the increased cost of flour which is rising steadily in price. Some enterprising housekeepers are laying in a stock to last them for some time so as to avoid paying higher prices later on. Bakers are considering the advisability of increasing the price of their loaves and some of them have already done so.

The subway has met with the decided approval of all Boston's car-riding population and hardly a criticism is heard. It has proved to be so light and airy, the relief of the crowded streets and the saving of time is so apparent, that it has demonstrated at once the wisdom of the change. Extra cars have had to be put on to accommodate those who are anxious to try the novelty of a ride underground and the first car which ran into the subway, is said to have carried 175 people. The platforms are so spacious, the arrangements are so perfect in every detail, that not an accident has occurred and the change has been made without the slightest inconvenience. As a piece of difficult engineering the subway has proved a great success.

Everything indicates that the long drawn out struggle between the bituminous coal miners and the mine operators is near its end. The representatives of the operators and the miners in the Pittsburgh district have agreed to recommend a sixty-cent rate for the remainder of the season, with the understanding that there shall be a meeting in December for the purpose of determining the rate thereafter, and it is expected that this recommendation will be accepted by the miners.

This is, of course, only a temporary settlement of the matter until December, but it is probable that before that time a satisfactory permanent adjustment can be made of the difficulties. The miners have kept the popular sympathy throughout the whole strike not only on account of the justice of their claims, but because of their law-abiding conduct and the self-control shown throughout the whole period, and both moral and material support have been given the strikers on that account.

The return of the Jackson-Harnsworth expedition has again aroused interest in the attempt to reach the North Pole. This expedition is an English one and started from England in July of 1894. The money for the enterprise was furnished by a Mr. Harnsworth, a newspaper man, one of whose hobbies is Arctic exploration. The expedition was headed by another Englishman named Jackson, and from these two men it takes its name. A strong steamship, the Windward, built especially for ice navigation, was used in the expedition. It was this expedition that Nansen so providentially met and it was in the Windward that he was sent home. The Jackson-Harnsworth expedition spent three years in Franz Joseph Land and their explorations have completely revolutionized the generally accepted opinion of that region. It has been discovered to be a vast number of small islands instead of all one continent, and the lofty mountains supposed to be there, prove to be only ridged hummocks and ice packs. North of Franz Joseph Land is an open polar sea, the most open north sea in the whole world. Valuable observations have been made by the expedition in their long stay and information obtained which will add greatly to the present knowledge of the polar regions.

It seems hard to separate the revolt of the Afghids and the attack on the Khyber Pass from the intrigues of the Amir of Afghanistan, says Harper's Weekly. The terrible visitations that have afflicted India within the last year—the famine, the plague, and the earthquake—have acted strongly on the superstitions of the natives, and rendered them easily accessible to any form of religious fanaticism. The great revival of Mohammedanism, due in part to the Sultan's victories over Greece, which are industriously magnified into the triumph of Islam over the infidels, has run through the whole of India. The Amir has sent out proclamations, taking unto himself the title of King of Islam, and the natives have been encouraged to believe that a deliverer is at hand to free them from the Christian yoke. The Sultan sent out agents from Constantinople to spread abroad the news of his victories and the triumph of the flag of Moslem. The Indian government even found it necessary to put a stop to the importation of Turkish newspapers. The Amir probably would shrink from an open revolt. He is too old and far-sighted, and too much attached to his \$500,000 subsidy to risk an overt rebellion. But that he indulges in a little mild intrigue well known. The attack on Fort Shibkadar was organized in Afghan territory and Afghan regulars took part in it. The mullah who did more than any one else to stir up the Afghids and Mohamands has been for many months in communication with the Amir's general at Jellalabad. The revolt on the Afghan frontier will be crushed out, as all former revolts have been. With the splendid system of mobilization that India has perfected, any repetition of the mutiny of '57 is impossible. And if the events of the last month on England's eyes to the absurdity of pursuing her Forward Policy any further, they will not have been without their usefulness.

The United States has, the last few years, monopolized the greater part of the export trade with England, and Boston has profited largely by this fact, a large proportion of the exports being from this port. It seems, however, that a formidable rival has arisen in Argentina, advice having been received by a Boston cattle shipper that the Argentine exportations are much larger than was supposed. The United States sends about 400,000 head of cattle a year to the United Kingdom, but in the month of June alone, Argentine sent 44,676 head of cattle and 9050 sheep, while the figures for July and August were about the same. This is more than the United States sent in the same time and it shows what a formidable rival Argentina has become. The increase in exports from Argentina has been rapid, for in 1890 that country sent only 700, and if it keeps on increasing in the same ratio, the United States must expect to meet sharp competition for the English trade. The quality of the cattle is not quite up to that from the United States and the price obtained is less than for American beef. The Argentine cattle dress well, however, and the quality is steadily improving. It costs much less to raise cattle in the South American country and the shipping rates are not very high, being only twenty shillings more than from this port.

Agricultural Fairs.
The seventy-seventh annual fair of the Rhode Island Society opened at Narragansett Park, Monday, in a most auspicious manner. The weather conditions were more than favorable, and, as it was Labor Day, the attendance was the largest for a first day in the history of the organization, being 32,000. The departments were in excellent condition, the management having exercised more than ordinary care to exclude the non-meritorious exhibits offered. This was particularly noticeable in the exhibition of horses and cattle. The agricultural features were strong, and a good showing was made in the department of domestic art.

The Vermont State Fair at Burlington was an excellent one and the exhibits of cattle and poultry were larger and better than ever before. Some of the exhibitors were L. S. Drew of Burlington, who had thirty-one Ayrshires on exhibition, C. M. Winslow of Brandon, R. Parker & Son of Ferrisburgh, H. R. C. Watson of Brandon, W. H. Neal of Meredith, N. H., H. L. Moore of Woodstock, Vt., and I. E. Benson of Woodstock. C. C. Paine of St. Randolph had the largest exhibit in the poultry department.

The fifty-third annual fair of the Barnstable Co. Agricultural Society was a great success, it being the best one they have ever held. The weather was perfect, the attendance unusually large, and the exhibits in all departments were superior to those shown in former years. A feature of the fair was the eloquent address of Curtis Guild, which made the heart of every Cape Codder, who heard it, swell with pride, and opened the eyes of the non-residents to the brave part which Cape Cod has played in the history of Massachusetts.

The two great fairs of Maine at Lewiston and Bangor, which took place on the same dates, were favored with excellent weather and good attendance. The stock and horses shown were in full supply, much of the stock having previously been at the New England Fair and won prizes there. Some of the stock, which had been entered but had failed to win prizes at the New England Fair, were not shown as intended at the second fair, as they would be obliged to compete with the same animals. Maine's reputation for cattle raising is by no means diminishing, as shown by these fairs, and many new breeders have entered the field of it. The State may well be proud of her enterprising stock raisers and the fine results shown at the fall fairs. President Jenard and Secretary Twichell, of the Lewiston State Fair, have retired after long service, during which the organization has been greatly strengthened and advanced, and President Pomplun and Secretary Clark will direct the arrangements for next year's fair at Lewiston.

Thursday, the third day of the Massachusetts State Grange fair, was one of the most unfortunate in the history of the Worcester Agricultural Society. It rained, and rained hard from early morning till into the evening. The attendance was slight and that made matters worse. Thursday has been for so long a time regarded as the big day of the fair, that the multitude retained the idea that it was the same this year. Late in the afternoon the management decided to continue the fair Saturday, hoping thereby to retrieve the losses of Thursday.

Friday the weather was perfect and 18,000 people were in attendance. The program arranged for Thursday was given on this day and everybody was thoroughly pleased with the proceedings. The attendance on Saturday was about 2500. The feature of the day's program was the racing of the horses John R. Gentry and Robert J. in an attempt to lower the local track record, and this was successful.

That the fair was not a financial success was due to Thursday's rain. President Jewett, Secretary Bowker and other officials put up an excellent fair and not a word of criticism is heard against the management.

Hood's Pills
Stimulate the stomach, rouse the liver, cure biliousness, headache, dizziness, constipation, etc. Price 25 cents. Sold by all druggists. The only pills to take with Hood's Sarsaparilla.

Read and Run.

—Prince Luigi has sailed for home.
—Gold has been found in Obion County, Tenn.

—Ohio men are buying sheep in foreign countries.

—There is a brisk demand for American meat abroad.

—New York's five new docks are to cost \$7,250,000.

—North Carolinians are making war on religious fanatics.

—The excitement over pearl hunting is increasing in Arkansas.

—Hon. Edward L. Pierce is reported to be seriously ill in Paris.

—Lumber has risen in price in all the markets west of Buffalo.

—Walter Wellman is to make a dash for the North Pole in 1899.

—The first yellow ochre in this country has been found on Long Island.

—There is an unusual number of prisoners in the Suffolk County jail.

—Operators are diverting corn shipments from Chicago to Duluth.

—A scientific examination shows that the Skagway trail is not dangerous.

—The Government will save \$45,000 per year on the new postal card contract.

—It is reported that a German syndicate has secured the St. Louis rolling mills.

—St. Louis expects to entertain five thousand visiting merchants this week.

—The centennial of the frigate Constellation was observed at Newport Tuesday.

—A new steamship line from the Gulf to Central America and West Indies is to be started.

—It is believed that the supply of opium will be small with correspondingly high prices.

—The Canadian Pacific is to run a Klondike service, probably by the Stikkeen River route.

—The new Dominion Atlantic Railroad Company's steamer Prince Edward has arrived in Boston.

—Wisconsin's tobacco crop is nearly all harvested and artificial spotting has been proved a success.

—Crop-Expert Sage says the Iowa corn crop has lost twenty-five per cent by hot winds the past week.

—When the fort at Havana was built it cost so much that the Spanish king asked if it was built of silver.

—The Harbor and Land Commission is to give hearings at Osterville regarding the building of a canal there.

—Consul General Lee has prevented an American from being transported to Africa by the Spanish authorities.

—Missouri's secretary of agriculture estimates that the State's corn and wheat crop is considerably below last year's.

—The South claims to have facilities for making armor plate, and the Naval Committee is to be asked to examine them.

—The corn movement at Chicago last week was treble that of a year ago, the wheat movement being nearly double.

—A great discovery has been made of iron ore in the Mesaba range in Minnesota. Forty million tons of ore is said to be in sight.

—The outlook for the Bay State Beneficial Association has been declared by Insurance Commissioner Merrill to be promising.

—Edward Marsden, a full-blooded Eskimo from Alaska, is among the students in the summer law school of the University of Michigan.

—A Lyons, New York, man, who has visited Europe and Asia wheat countries, says that he believes wheat will go to \$1.50 per bushel.

—Representatives of railroad and flour mills at Minneapolis have been subpoenaed for rate-cutting by the Interstate Commerce Commission.

—An effort is being made in Worcester to replace the McTammany voting machines used in the last national election with new machines.

—Samuel Harraden, the father of Beatrice Harraden, has died. Miss Harraden testifies that she owes all her success in literature to her father.

—Peaches have been received in Boston from Missouri and Arkansas in good condition and the experiment of shipping them has proved successful.

—There are at least a hundred editions of "Lucile" in this country, and many thousand copies are sold annually. In England the book is scarcely read.

—The Kansas State Board of Agriculture reports that corn is greatly damaged by the August drought, and the winter wheat acreage has been increased eighteen per cent.

—The Nebraska State Board of Agriculture reports only 25,000,000 bushels of new corn that is safe, while nearly 75,000,000 bushels is damaged, but there are 150,000,000 bushels of old corn on hand.

—The United States Circuit Court of Appeals has affirmed the decision of the Circuit Court awarding the Washburn & Moen Manufacturing Company a verdict of \$2500 against the Reliance Marine Insurance Company.

—Prof. William P. Brooks of the Agricultural College, has returned from Europe with his family. For the past year Professor Brooks has been studying at the University of Halle, Germany, and will now resume his work in connection with the college and the experiment station.

—Southern people are fleeing northward to escape yellow fever at Ocean Springs, Miss. The government has taken charge of the pest station there; nearly one hundred persons attempting to escape were turned back at Mobile; no new cases have been reported at New Orleans and the scare is subsiding.

Literary Notes.

APPLETON'S POPULAR MONTHLY for September offers its usual instructive and interesting variety of papers. The leading article, Spanish Experiments in Coinage, by Henry C. Lea, describes the way in which Spain's stupid tampering with her currency has brought about her present bankrupt condition, and points an obvious moral. The Hawks of New England by William E. Cram, is a delightful little bit of natural history fresh from the fields. The Objects and Results of Polar Research by George Bernard, gives a brief history from the earliest times to the present day of the numerous attempts to reach the pole. New York: D. Appleton and Company. Fifty cents a number; \$5 a year.

The September issue of "TABLE TALK" contains among its many interesting subjects treated within its pages, "Some Unique Luncheons" by Mrs. Burton Kingsland; "Civilized Man Can not Live Without Cooks" by Katherine Read Lockwood; "Some Spanish-American Cookery" by Sharlot M. Hall; "Women of Colonial and Revolutionary Times" by Mary Lloyd; receipts for the most seasonable canning and preserving and also for the promiscuous dishes requested by housekeepers from all over the country. Its menus are freshly prepared each and every day, by Miss Cornelia C. Bedford, one of the leading authorities in the country, and "The New Bill of Fare" by Mrs. M. C. Myers is, as usual, one of the chief features of the issue. Any of our readers wishing to see a sample copy of "Table Talk" can secure it free of charge, by sending name and address to Table Talk Publishing Co., Philadelphia, Pa.

A noticeably fine portrait of Edward Everett Hale appears upon the cover page of the Magazine Number of THE OUTLOOK for September. The picture is reproduced in half-tone from a portrait of Dr. Hale painted recently by his son, Mr. Philip Hale. The occasion of the appearance of this portrait is the announcement of a series of articles of exceptional interest, which will appear throughout the Magazine Numbers of THE OUTLOOK for 1898. The title of this series will be "James Russell Lowell and His Friends." Dr. Hale knew Lowell from boyhood up. In these twelve articles he will talk freely and with an abundance of anecdote about Lowell, his friends, and his times. Dr. Hale's originality and humor, as well as the exceptional interest of his subject, will certainly make this series one of very wide interest and popularity. [33 a year. The Outlook Company, 13 Astor Place, New York.]

One of the most valuable little books recently published is "INFANCY AND CHILDHOOD," by Mrs. Frances Fisher Wood. It should be in the hands of every mother and those who have the care of children in the first important years of their life. As Mrs. Wood says, it is in the first five years that the child's physical constitution is determined, and the first six months are the most important of all when habits are formed and the foundation laid for future growth. The true mother is anxious to care for her child in such a way as will insure its highest development, but lack of information and the very anxiety of her mother love leads her to make frequently grave mistakes for which the child must suffer its whole life through. Mrs. Wood's little book is so simply and plainly written, is so thoroughly common sense and practical in every line that it gives just the information needed and is calculated to do a great deal of good. She deals very largely with principles, rather than rules or methods of procedure, recognizing the fact that every child has a different organization which must be taken into account. She covers the subject very fully from the moment the child enters the world up to the time when it is five or six years old with special reference to the subjects of feeding, dressing, habits of sleeping and its general training. All thoughtful mothers will welcome this book gladly, and with it as a guide, the young mother can make but few mistakes in this, her most important duty. Its low price places it within the reach of all. Harper & Bros., New York, publishers.

Country Real Estate.

The poultry, small fruit and vegetable farm of M. A. Shirley, situated on Main street, Franklin, comprising four and one-half acres, with various buildings, has been sold to G. M. Holbrook of New Haven, Conn., who buys for a home.

The Abington Savings Bank of Abington has sold its estate on North Franklin street, Holbrook, comprising a house, stable and three-quarters of an acre of land to a Boston person, who buys for investment.

Charles W. Latham has sold his estate numbered 53 Main street, Hopkinton, to Morris B. Hall, who buys for investment. This property consists of a frame dwelling and store and about 3000 square feet of land.

A farm of thirty-three acres in Billerica near the Lowell electric cars, belonging to Francis S. Hall, of New York, has been sold to Thomas J. Gill of Charlestown, who will occupy. The sale includes a large amount of personal property.

Alice B. Cook of Franklin, has sold her residence on Hartford avenue, Bellingham, consisting of two acres of land, house and stable, to Timothy Foley.

During September a series of Physicians' excursions will be run over the Fitchburg Railroad to the Adirondacks, and no one not familiar with the beauties of that region should lose the opportunity of touring it at this time. The excursion will leave Boston, Sept. 7th and 21st, and be under the personal supervision of Dr. C. M. Tobey, manager of the Adirondack Bureau of Information, Boston, who has a real, and is thoroughly familiar with their beauties. All of the best section will be included in the tours, and the service will be first-class in every respect.

The Adirondacks combine all the picturesque features of Maine, New Hampshire and Vermont in one grand panorama of mountain, lake and river, and the atmosphere is one constant, exhilarating tonic. The mountains clothed in the autumnal foliage, will be a sight long to be remembered, and one never to be forgotten.

Physicians cannot afford to lose this opportunity, for these trips are educators, and with that idea in mind, both the hotels and railroads have arranged to perform the service at actual cost and to give the best they have.

The rates will be \$55.00 and \$40.00, according to tour selected, which amount includes all expenses.

While designated "Physicians' Excursions," it should be understood that they are not restricted to that class, but are open to all who may desire to avail themselves of the cheapest and best Adirondack trip ever advertised.

For itinerary and information covering trip, application should be made to Dr. C. M. Tobey, Manager Adirondack Bureau of Information, 220 Devonshire Street, Boston, Mass.



RE-OPENS SEPT. 7th, 1897.

THE COURSE OF STUDY is thorough, complete and practical. Pupils are fitted for the duties and work of everyday life.

THE FACULTY embraces a list of more than twenty teachers and assistants, elected with special reference to proficiency in each department.

THE DISCIPLINE is of the highest order and includes valuable business lessons.

THE PATRONAGE is the largest of any similar institution in the world.

THE REPUTATION of this school for originality and leadership and as being the standard institution of its kind is generally acknowledged.

SPECIAL COURSE. Short-hand, Type Writing, Composition and Correspondence may be taken as a special course.

SITUATIONS. In business houses furnished pupils among the varied inducements to attend this school.

THE SCHOOL BUILDING, 608 Washington Street, Boston, is centrally located and purposely constructed. Office open daily from 9 till 4 o'clock. President, H. E. HIBBARD, Principal.

The Farmers' Congress.

The Farmers' National Congress held its seventeenth annual session in St. Paul, President S. F. Clayton, of Indianapolis, presiding. In his annual address the president referred to the fact that out of the 44 members in Congress, but thirty-five in the House of Representatives and one in the Senate represented the 30,000,000 of the farming population of this country, and said that this was so on account of the lack of energy of the farmer in public affairs. The secretary, John M. Stahl, said in his annual report that the Farmers' Congress had been largely instrumental in securing just protection for farm products in the new tariff bill; had been the leader in the effort to secure rural free mail delivery and a foremost advocate of good roads. It had been said by an authority that the National Farmers' Congress had more influence with the Congress of the United States than all the other agricultural organizations in the country combined.

The secretary of the Minnesota Agricultural Society read a paper on the success of state fairs, and recommends among other necessities state management and ownership of grounds. A speaker from Venezuela spoke of a plan for establishing a colony of American farmers in Venezuela, while the Mexican minister to the United States spoke of the advantages of Mexico as a farming country and the opportunities offered for American farmers.

Ex-Governor Hoard of Wisconsin was chosen president of the Farmers' Congress for the next year, and John M. Stahl re-elected secretary. The New England States were represented among the vice-presidents by W. H. Moody from Maine, J. H. Lantram of New Hampshire, G. I. Spear of Vermont, R. M. Candage of Massachusetts, G. A. Stockwell of Rhode Island, and J. H. Hale of Connecticut.

Press Comment.

The season for agricultural fairs has come again. These events cannot be described as absolute novelties, nor can the news relating to them be called sensational, as a rule; but the annual recurrence of the period devoted to them never fails to produce a mild impression of surprise at its beginning. We are inclined to wonder whether the institution of the county fair is destined to last indefinitely through all changes of custom and social conditions; whether inventions, discoveries, industrial revolutions, even the rise and fall of nations, can have no perceptible effect on this ancient institution. Then, too, we are always a little startled at the coming again of the time when a more or less patient public must submit with what grace it can to the warming over of the old jokes appropriate to the subject and the even more irksome infliction of attempts at making new ones.—Boston Transcript.

For many years the Western farmer complained that he derived no benefit from so-called protection, since higher prices for manufactured goods, even allowing that the Eastern mechanic was benefited, were only a benefit to him. Now the boot is on the other leg, and the Eastern consumer engaged in manufacturing pursuits might say that while dollar wheat is a great thing for the Western wheat raiser it works only detriment to him in the way of an advanced cost of living. These things belong in the category of social general averages. It is so just ground for discrediting genuine prosperity. If we people in the East are asked to pay a little more for flour and beef just now, we must remember that the Western farmer has not had his innings before for many years. Temporarily one section has to help pay for the prosperity of another, but in the long run the benefits of all genuine prosperity are equalized. There never can be too much prosperity even if it takes some time to distribute the benefits equally.—Boston Globe.

When both of the twins are helpers they are just as likely to breed as single ones. A bull that is twin to a heifer is also prolific, but a heifer that is a twin to a bull will not breed, as a rule.—Holstein Fancier.

HERMES S. HEYWOOD, PURCHASING AGENT, 21 Milk Street, Boston, Mass. Estimates furnished on merchandise of every description. Telephone, 3053 Boston.

EXCURSIONS.

DELIGHTFUL EXCURSION

TRIP TO

PROVINCETOWN.

The Popular Family Excursion

Steamer Longfellow.

CAPT. JOHN SMITH.

Will leave Commercial wharf (North Pier) daily at 9 A.M. Sundays 9:30 A.M. for a delightful excursion trip to Provincetown, arriving about 1 P.M., giving passengers going up the Cape ample time to take the afternoon train up. Leaves PROVINCETOWN at 2:30 P.M., arrives at Boston about 6:30 P.M.

Excursion tickets \$1. Stop-over tickets, good until Sept. 15, \$1.50.

Dinner and refreshments served on board. NO LIQUORS.

ATWOOD & RICH, Agents, 83 Commercial Wharf.

Low rates to Moonlight Excursionists.

Boston & Gloucester Steamboat Co.

NORTH SHORE ROUTE.

DON'T FAIL

TO TAKE A TRIP

To Gloucester

ON THE NEW AND ELEGANT

STEEL STEAMER CAPE ANN

AND THE POPULAR

</

MARKETS.

BOSTON LIVE STOCK MARKET

Cattle steady for North Road Stock—Sheep firm and Western Lambs, &c.—Hogs steady for Western and 1-2c up for Country.

Cattle—Calves rate steady, Milch Cows as last Quoted—Horse Market slow.

Reported for Mass. Ploughman.

Week ending Sept. 8, 1897.

Amount of Stock at Market.

Cattle, Sheep, Steers, Hogs, Veals
This week, 3,444 6,547 135 31,690 1,913
Last week, 4,283 12,370 190 24,412 2,042
One year ago, 4,801 12,390 173 22,034 1,419
Horses.....470

CATTLE AND SHEEP FROM SEVERAL STATES.

Cattle, Sheep, Cattle, Sheep
Maine.....275 977
N. Hampshire 183 1028
Vermont.....179 740
Massachusetts 226
Canada.....196 1452
Total.....3844 6547

CATTLE AND SHEEP BY RAILROADS, ETC.

Cattle, Sheep, Cattle, Sheep
Pittsburg 2821 2062
Eastern.....297 3561
Lowell.....168 924
R. & A.....461 930
Foot & boats, 97
Total.....3844 6547

Values on Northern Cattle, etc.

Heads—Per hundred pounds on total weight of head, tail and feet, \$5.25 to \$5.75; first quality, \$5.75 to \$6.00; second quality, \$5.25 to \$5.50; third quality, \$5.00 to \$5.25; some of the poorest, bulls, etc., \$2.50 to \$3.00.

Working Ores—\$40.00 to \$45.00; heavy steers, \$50.00 to \$55.00, and according to their value for beef.

Cows and Young Calves—Fair quality, \$20.00 to \$25.00; extra, \$25.00 to \$30.00; milch cows, \$30.00 to \$40.00; farrow and dry, \$12.00 to \$15.00.

Stores—Thin young cattle for farmers: yearlings, \$8.00 to \$10.00; two-year-olds, \$12.00 to \$15.00; three-year-olds, \$15.00 to \$20.00.

Sheep—Per pound, live weight, 2¢ to 3¢; extra, 3¢ to 4¢; sheep and lambs per head, in lots, \$2.00 to \$2.50; lambs, 5¢ to 6¢.

Fat Hogs—Per pound, live weight, 5¢ to 6¢; country, 4¢ to 5¢; retail, 6¢ to 7¢; country, 5¢ to 6¢; dressed, 4¢ to 5¢.

Veal Calves—3¢ to 4¢ per lb.; country lots 4¢ to 5¢.

Tallow—Brighton, 3¢ to 4¢ per lb.; country lots 4¢ to 5¢.

Butter—15¢ to 16¢ per lb.; country lots, 15¢ to 16¢.

\$1.00; milk skins, 3¢ to 4¢.

ARRIVALS AT THE DIFFERENT YARDS.

CATTLE, SHEEP, HOGS, VEALS, HORSES
Watertown, 2949 4336 14,500 1331 396
Brighton.....855 221 17,000 682 80

General Live Stock Notes.

The totals of cattle and sheep were not heavy, which argues well for next week's arrivals. Some of the country cattle were light arrivals very few weeks for all concerned. Butchers want to clean up the stock they are holding and the market is likely to be supplied by a good fair market for the next week for the most part, things seem to tend that way both demand and supply. Hogs had a very firm position and westerns cannot be bought at the prices asked, which occasioned the light run this week from that section. The market for the butchering of the butchering was attributed to yesterday being Labor Day. There were a few pairs of working oxen brought in from Connecticut.

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General Live Stock Notes.

The totals of cattle and sheep were not heavy, which argues well for next week's arrivals. Some of the country cattle were light arrivals very few weeks for all concerned. Butchers want to clean up the stock they are holding and the market is likely to be supplied by a good fair market for the next week for the most part, things seem to tend that way both demand and supply. Hogs had a very firm position and westerns cannot be bought at the prices asked, which occasioned the light run this week from that section. The market for the butchering of the butchering was attributed to yesterday being Labor Day. There were a few pairs of working oxen brought in from Connecticut.

thing good for the eyes of butchers to say nothing of dealers. The right sort, the best of such would almost make one's mouth water to eat it. Well, Dick Sturtevant was not ashamed to dip into that kind of stock. About 135 head of Eastern cattle, including a bull, cattle that had been to Maine fairs and got honors and ribbons sold at fancy prices. The bulk of the cattle sold to facts that he believed they were bought for a cent less than 60¢; a pair of his own feeding of 4000 lbs. a pair by Merrill Bros. of Cumberland, Me., and 4-year-olds of 3240 lbs. a pair. Hows sold at 8¢, at 1500 lbs. a pair working oxen getting on 6¢ to 10¢, 3000 lbs. at 4¢.

Sheep Houses.

It was something out of the common course, there being but few Western arrivals, but when we learn that lambs from that section cost landed here, it would be next to impossible for butchers to handle them at this price, therefore they ran their chances of getting all they wanted from other sources; not but butchers object to westerns, as to quality the price is beyond their reach for this market. Country lambs brought at 5¢, 6¢, 7¢, 8¢, 9¢, 10¢, 11¢, 12¢, 13¢, 14¢, 15¢, 16¢, 17¢, 18¢, 19¢, 20¢, 21¢, 22¢, 23¢, 24¢, 25¢, 26¢, 27¢, 28¢, 29¢, 30¢, 31¢, 32¢, 33¢, 34¢, 35¢, 36¢, 37¢, 38¢, 39¢, 40¢, 41¢, 42¢, 43¢, 44¢, 45¢, 46¢, 47¢, 48¢, 49¢, 50¢, 51¢, 52¢, 53¢, 54¢, 55¢, 56¢, 57¢, 58¢, 59¢, 60¢, 61¢, 62¢, 63¢, 64¢, 65¢, 66¢, 67¢, 68¢, 69¢, 70¢, 71¢, 72¢, 73¢, 74¢, 75¢, 76¢, 77¢, 78¢, 79¢, 80¢, 81¢, 82¢, 83¢, 84¢, 85¢, 86¢, 87¢, 88¢, 89¢, 90¢, 91¢, 92¢, 93¢, 94¢, 95¢, 96¢, 97¢, 98¢, 99¢, 100¢.

Veal Calves.

Market not as largely invested as last week and not as much required. Veal calves 150 to 180 lbs. had a good sale this week for last week. Prices generally paid for calves today were 4¢ to 5¢, a few at 6¢ but had to be prime stock. A few calves sold at 12¢ to 15¢, a few at 16¢ to 18¢, a few at 19¢ to 21¢, a few at 22¢ to 24¢, a few at 25¢ to 27¢, a few at 28¢ to 30¢, a few at 31¢ to 33¢, a few at 34¢ to 36¢, a few at 37¢ to 39¢, a few at 40¢ to 42¢, a few at 43¢ to 45¢, a few at 46¢ to 48¢, a few at 49¢ to 51¢, a few at 52¢ to 54¢, a few at 55¢ to 57¢, a few at 58¢ to 60¢, a few at 61¢ to 63¢, a few at 64¢ to 66¢, a few at 67¢ to 69¢, a few at 70¢ to 72¢, a few at 73¢ to 75¢, a few at 76¢ to 78¢, a few at 79¢ to 81¢, a few at 82¢ to 84¢, a few at 85¢ to 87¢, a few at 88¢ to 90¢, a few at 91¢ to 93¢, a few at 94¢ to 96¢, a few at 97¢ to 99¢, a few at 100¢ to 102¢, a few at 103¢ to 105¢, a few at 106¢ to 108¢, a few at 109¢ to 111¢, a few at 112¢ to 114¢, a few at 115¢ to 117¢, a few at 118¢ to 120¢, a few at 121¢ to 123¢, a few at 124¢ to 126¢, a few at 127¢ to 129¢, a few at 130¢ to 132¢, a few at 133¢ to 135¢, a few at 136¢ to 138¢, a few at 139¢ to 141¢, a few at 142¢ to 144¢, a few at 145¢ to 147¢, a few at 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THE HOUSEHOLD.

WHAT THE WOOD FIRE SAID TO THE LITTLE BOY.

What said the wood in the fire
To the little boy that night,
The little boy of the golden hair,
As he looked himself in his little arm-chair,
When the blaze was burning bright.

The wood said: "See
What they've done to me!
I stood in the forest a beautiful tree!
And waved my branches from east to west,
And many a sweet bird built its nest
In my leaves of green
That loved to lean
In springtime over the daisies' breast.

"From the blossomy dells
Where the violet dwells
The cattle came with their clinking bells
And rested under my shadows sweet,
And the winds that went over the clover and wheat,
Told me all that they knew
Of the flowers that grew
In the beautiful meadows that bloomed at my feet.

"And the wild wind's caresses
Of ruffled my tresses
But, sometimes, as soft as a mother's lip
Presses
On the brow of the child of her bosom, it laid
Its lips on my leaves, and I was not afraid;
And I listened and heard
The little heart of each bird
As it beat in the nests that their mothers had made.

"And in springtime sweet faces
Of myriad graces
Came beaming and gleaming from flowery places.
And under my grateful and joy-giving shade,
With cheeks like primroses, the little ones
Played.

"On the bower of the child of her bosom, it laid
Its lips on my leaves, and I was not afraid;
And I listened and heard
The little heart of each bird
As it beat in the nests that their mothers had made.

"And the lightning
From storm skies and frightening
The wandering birds that were tossed by the breeze
And tilted like ships on black, billowy seas;
But they flew to the shelter of my arms,
And I rocked them to rest
While the trembling vines clustered and clung
To my knees.

"But how soon," said the wood,
"Fades the memory of good!
The forest came with his axe gleaming bright,
And I fell like a giant, all shorn of his might.
Yet still there must be
Some sweet mission for me;
For have I not warmed you and cheered you to-night?"

So said the wood in the fire
To the little boy that night,
The little boy of the golden hair,
As he looked himself in his little arm-chair,
When the blaze was burning bright.
—Frank L. Stanton, in the Atlantic Constitution.

HOW JOHNNY WENT HUNTING.

Johnny and Alf Lawrence went down to grandpa's farm from their home in town to spend the last two weeks of vacation. They went down alone on the train, over fifty miles, and felt quite like travelers when they got off at the little station nearest grandpa's farm, and loaded themselves and their satchels into grandpa's big wagon.

Such a supper as grandpa had waiting for them! And they ate fourteen just such suppers, and as many breakfasts and dinners, too, before they went home, and were just a little hungrier each time, grandpa said. Between meals they climbed trees, made mill-wheels in the creeks, went fishing, raked hay, and did all the thousand and one things boys can find to do when they go to the country.

"But the biggest thing of all didn't happen until the very last day," Johnny told mamma, when the travelers had gotten home.

That morning old Bess, the red cow, walked into the barnyard to get her breakfast with the rest of the cows. It was the first time she had been seen for several days; and, when grandpa came in to breakfast, he said to grandpa:—
"Old Bess is back. I wonder where she's hidden her calf this time."
"Hidden her calf?" echoed Alf, surprised. "Why, what do you mean, grandpa?"

"She has hidden it down in the big pasture somewhere," grandpa said. "For fear some one will steal it away from her. I suppose she stayed with it until she was almost famished, and had to come up to the barn for something to eat. Then she made it lie down among the thick bushes somewhere, and told it not to stir or to make one sound until she came back; and then she left it. And you might hunt all around that clump of bushes where it is hidden, and not find it. But Bess won't rest until she gets back to it."

"Well, I know I can find it," Johnny said.

"I'll go with you," Alf said. "Will you give us leave, grandpa?"
"How will you go to work to find it, Johnny?" grandpa asked.

"Follow Bess when she goes back," was Johnny's quick answer.

Grandpa laughed and nodded. He liked the way Johnny always had his mind made up.

"I'll tell you what I'll do, boys," he said. "I'll give that calf to the one who finds it."

"Hooray!" shouted both boys at once. And then, as they were at the breakfast-table, they said no more, but finished breakfast in a hurry.

"Just one thing," grandpa called after them, as they left the room: "don't let old Bess know you're following her."

"I wonder what grandpa meant by telling us that," said Alf.

"Just what he said, I guess," Johnny answered, as he looked around for old Bess. She was just going in through

the pasture bars, cropping the grass quietly.

"We must wait for her to get down among the trees before we begin to follow her," Johnny decided. So they sat down on the shady side of a haystack, and hunted hollow straws, watching Bess all the time.

But she seemed in no hurry to get among the trees, and the boys began to get tired of waiting. She went from one bunch of grass to another, and all the time watching the boys as closely as they watched her.

"Oh, bother!" said Alf at last. "I'm tired of this! That old cow will be all day getting to her calf, if she's got one at all. I'm going down the creek to get those birds' nests, if they're empty. You'd better come along."

Johnny thought a minute. He didn't want to lose the birds' nests. Then he looked at grandpa like came into his brown eyes.

"No, sir!" he said, "I'm going to find that calf."

So he threw himself down on the hay again, and Alf went off whistling. After a long while, Bess seemed to make up her mind that the little boy under the haystack didn't care anything about her; and she started on a brisk trot down toward the trees. Johnny waited until she was in among them; and then he followed her, dodging from tree to tree to keep out of sight. He had quite a hard time to keep up with her.

But by and by she saw him, and at once she began cropping the grass again. Johnny sat down under the tree, and there he had another long wait.

By and by he climbed the tree; and, when Bess missed him, she went on. He followed; and, by climbing trees and hiding behind bushes, he got on slowly, for old Bess was very careful.

He was up a tree when the first bell rang for dinner; but he said to himself: "Can't give it up now. I'd sooner go without any dinner."

He was down at the far end of the pasture, so he felt sure the calf must be quite near. Alf heard the dinner-bell, and started to the house. He had found six empty nests.

"Hope Johnny's found his calf," he said to himself. "If he hasn't, he'll feel pretty bad when he sees these."

Dinner was nearly over when a bare-headed, red-faced, hot, and dirty boy came rushing into the cool dining-room.

"I've found it!" shouted he. "It's red, like Bess, and such a beauty!"

"Eat some dinner, and then we will go and see it," grandpa said. "Where's your hat?"

Johnny laughed. "I hung it on the bushes to mark the place," he said.

Then he told them how he followed Bess.

"Just after the last dinner-bell rang," he said, "as Bess went toward a clump of bushes in the fence corner, I heard a noise in the bushes. Then Bess made such a queer noise, and rushed into the bushes; and I knew the calf must be there. So I peeped through, and there it was!"

Grandpa and Alf went with him after dinner: to see his calf, and grandpa said it would be a fine cow. They went home next day, and it took them several days to tell mamma everything.

Grandpa is to take care of the calf, and once a month he will write and tell Johnny how it gets on. Johnny does not know whether he will keep his cow, or whether he will sell it and buy a bicycle or a pony. He would like to do all three.—Fannie L. Brent, in Youth's Companion.

A BABY'S FEET.

A baby's feet, like sensibleness pink,
Might tempt, should heaven see meet,
An angel's lips to kiss, we think,
A baby's feet.

Like rose-hued sea-flowers, toward the heat
They stretch, and spread, and wink,
Their ten soft buds that part and meet,
A baby's feet.

No flower-bells that expand and shrink
Gleam half so heavenly sweet,
As children on life's untrodden brink
A baby's feet.

—Algernon Charles Swinburne.

The Little Bridemaid.

It was more than a hundred years ago. Sensible mothers put their babies to bed at nightfall then, even if there was to be a grand wedding in the evening.

"I'd like to have Susie stay up to see me married," said pretty aunt Kate who was to be the bride.

"Pshaw!" said Susie's mother, "a two-year-old baby wouldn't remember. Susie get sleepy and cross."

So Susie prattled her "Now I lay me in broken words, and went to bed never dreaming what splendors she would miss.

The hour came, and the minister. The pretty bride in her white satin gown, stood up by her lover, and the solemn service began.

Patter, patter, little feet, but so softly nobody heard them until it was too late. There, if you please, stood Susie in her white night gown, close beside dear aunt Kate, clutching the satin skirt with her soft fingers.

Even mamma knew it wouldn't do to stir then, for the wee lassie was sometimes imperious and could show temper. So there the baby stood, an unconscious bridemaid.

When the service was over, such a laughing you never heard, and Susie protested at being hugged so much.

"She quite eclipsed me," aunt Kate declared.—New York Observer.

THE HOME CORNER.

FREE PATTERN.

By special arrangement with the BAZAR GLOVE-FITTING PATTERN CO., we are able to supply our readers with the *Bazar Glove-Fitting Pattern* at a very low cost. It is acknowledged by every one that these patterns are the simplest, most economical and most reliable patterns published. Full directions accompany each pattern, and our lady readers have been invariably pleased with them in the past. The coupon below must accompany each order, otherwise the pattern will cost the full price.

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Cut this out, fill in your name, address, number and size of pattern desired, and mail it to THE HOME CORNER, MASS. PLOUGHMAN, BOSTON, MASS.

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No. of Pattern

Size

Enclose ten cents to pay expenses.

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taire and the waist draped quite full back and front with the black muslin. It is fastened at the side under three ruffles. Two of black muslin de sole and one of white between them. The neck and sleeves are trimmed with three ruffles to match the side trimming. This waist can be worn with a black silk skirt and the girle should be made of the same material as the skirt.

The English walking hats are quite popular at present. Some of the shirred tulle and muslin hats for the seashore are made in this shape and are trimmed with huge rosettes of tulle, and white birds or wing. Black straw and lace hats in the same shape are trimmed with quantities of feathers, one long feather falling gracefully over the left side of the hat on the hair.

The secret of darning lies in running the thread of the darning cotton so far on each side of the hole that it does not immediately fray and pull out the goods. Take a long thread of darning cotton to begin with and run it at least half an inch along the goods on each side of the hole. Continue this until the hole is snugly covered. Now cross these threads in regular darning style, taking care that the same precaution is observed. A stocking darning in this way will wear as far as the darning is concerned, as long as if no hole existed, says the Stockman and Farmer.

To darn very large holes, such as are likely to occur from having been pulled or frayed out in the laundry, something more than a thread of darning cotton may be necessary, and a patch must be used. Such holes almost surely occur in the heel, as this part of a stocking is usually worn thin first and is more likely to fray.

In treating of the method of mending them it is safe to take the heel for a model. From the leg of an old stocking, such as are sure to be found in your basket, cut a kite-shaped piece of goods about five inches long and four inches across. Turn the stocking wrong side out and lay the kite upon the heel so that the long-pointed end runs up the back of the leg and the lower rounded part is at the base of the heel. Run a stout linen thread down the center of the kite, taking large, loose stitches. Now run in the same way across the kite-shaped piece, letting the thread be very slack. The next step is to sew the patch lightly to the heel by stitching it around the outside. If deftly done, there will be neither wrinkle nor crease to tell the wearer that so important an operation has taken place.

This is especially useful with children's stockings. Boys' shoes are almost sure to be harsh and ill-fitting. Run a stout linen thread down the center of the kite, taking large, loose stitches. Now run in the same way across the kite-shaped piece, letting the thread be very slack. The next step is to sew the patch lightly to the heel by stitching it around the outside. If deftly done, there will be neither wrinkle nor crease to tell the wearer that so important an operation has taken place.

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OUR HOMES.

SUNRISE ON THE HILLS.

I stood upon the hills, when heaven's wide arch
Was glorious with the sun's returning march;
And woods were brightened, and soft gales
Went forth to kiss the sun-laid vale.
The clouds were far beneath me; bathed in light
They gathered midway round the wooded
height.
And, in their fading glow, those
Like birds in battle overhead,
As many a plume with shifting glance,
Through the gray mist thrust up its shattered
lance.
And rocking on the cliff was left
The dark pine elated, bare and cleft.
The veil of clouds was lifted, and below
Glowed the rich valley, and the river's flow
Was darkened by the forest's shade,
Or glistened in the white cascade;
Where upward, in the mellow light of day,
The noisy litters wheeled his spiral way.
I saw the distant waters dash,
I saw the current whirl and flash,
And richly by the blue lake's silver beach
The woods were bending with a silent reach.
Then o'er the vale, with gentle swell
The music of the village bell
Came sweetly to the throbbing hills;
And the wild horn whose voice the woodland
fills,
Was ringing to the merry shout,
That faint and far the glen sent out.
Where, answering to the sudden snort, thin
smoke,
Through thick-leaved branches, from the dingle
broke.
If thou art worn and hard beset
With sorrows, that thou wouldst forget,
If thou wouldst read a lesson, that will keep
Thy heart from fainting and thy soul from
sleep,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears.
—H. W. Longfellow.

AFTER LOVING THIRTY YEARS

When pretty Hester Warren married
Ezra Banks, who was twenty years older
than she, and a shy, silent man out of
touch with village life, everybody said
that she made a mistake that she would
soon regret. Yet, though village eyes
kept keener watch upon her, Hester's
prophecy was for once at fault. Hester's
girlish beauty changed into comfortable
middle-aged comeliness, and Ezra grew
stiff and rheumatic, yet their devotion to
each other was unchanged; indeed, after
Nannie, their only child, married and
left home, it seemed as if the pages of
life had blown back for them and they were
once more lovers and the world was
for them alone.
That was before Ezra had typhoid
fever. Through his long illness his
wife nursed him tenderly, but he came
from it a broken-down old man, with his
ears forever sealed to all the common
sounds to which his life had been set.
He was slow in realizing this, but one
day as he lay watching his wife and the
doctor, the knowledge broke harshly
upon him. He could see his wife's
lips move as she smoothed the bed with
her soft, wrinkled hand, but he could
hear no word. Then he turned his dull
eyes, with a pitiful look of pain darkening
them, toward the doctor. He, too,
was speaking, but the deaf ears could
catch no sound. His weak, peevish
voice jarred suddenly upon their talk:—
"Why don't you speak so I can hear
ye, stid o' mumb'ling so?"
His wife started and then cast a quick,
imporing glance at the doctor. She
looked down over the bed; her face was
in the shadow and her husband could
not see her eyes.
"Do you hear me now, dear?"
The words reached him faintly, and from
a distance. He struggled with the sounds
a minute or two before they resolved
themselves into words.
"Of course I hear ye," he said fret-
fully, "only why don't you speak up?
I ain't so sick, be I?"
The words were a little clearer now,
though still far off.
Very sick, but getting better fast. It
has to be quiet for you, you know, dear,
but you will soon be up, now."
The old man shut his eyes wearily;
the effort had been a heavy one for him.
His wife turned to the doctor, her eyes
shining through her tears. "I can make
him hear," she cried, "I knew I could!
I didn't believe Ezra could get where he
couldn't hear me. And he needn't ever
know now!"
The doctor looked at her and said
nothing. He was a young man and it
seemed very pitiful to him.
But he had not understood the old
man's strong constitution. In a few
weeks he was about again, as well as
ever, apparently, save for the sealed
ears. His wife chattered to him in her
old fashion and kept out of sight the
medicines she took for her strained
voice; she cautioned the neighbor that
he did not know. But she was mistaken;
—that had been woven into a life of
nearly 70 years, and in place of these
there was a great vacant stillness; and
he knew all.

One afternoon she found him sitting
in the big wooden chair in the kitchen,
studying his old twisted hands. He
gave her a tremulous smile as she came
in.
"I'm most broken up, Hester," he said.
"Don't!" she cried, "don't, Ezra—I
can't hear it!" He was both getting older
but that's all 'tis."
He shook his head sadly. "No 'tain't,
Hester—I've been a-sneezing it for a long
time. You're young yet—you can see and
hear just as you used, but I—I'm
an old man, Hester. You've been a
good girl, and we've had a happy
life together, but I didn't calculate for
you to be tied up to an old man. I've
got to be thinking about it lately, and
sometimes I think folks was right and
it hadn't orter been."
The woman listened and a great pain
seemed to beat up in her throat and
choke her voice. She leaned over and
put her trembling hands on his.

"Ezra," she cried, and the appeal in
her voice carried it with clear distinct-
ness to him. "Ezra, have I ever said or
done a thing to make you feel so?"
He looked up, startled. "God knows
you haven't, Hester," he said earnestly.
"And, Ezra, if anything should hap-
pen to me—if I should be sick or help-
less, would you love me less? Would
you?"
A change came over the old man; it
seemed for an instant that the face of
his youth looked back at her. "If it
wasn't for your suffering, Hester, I
wish you could see," he said, almost
passionately.

He rose stiffly and with his arm
about her, looking down the road. It
was toward nightfall, and the valley

was full of shadows, while above the
hills floated soft gray clouds—the dead
sunset. And even as they looked a
sudden thrill and flush came across
these, and the valley was filled with the
glory of the afterglow, and the two old
figures stood still in the midst of the
golden light.

It was a few weeks after this that
Hester caught a severe cold. She was
in bed for several days, and Nannie had
her husband and child to care for long.
"They'll be needing you—I can get
along now," she said.
"I guess they can get along without
me a little while longer," answered
Nannie.
"What say?"
Nannie looked alarmed; she raised her
voice and spoke with careful emphasis.
"I guess—they can get along—without
me a little while," she repeated.
Her mother nodded. "I said it had
been quite a while," she said. "I'm glad
you're good, Nannie, though we shall
miss you so."

Nannie's face filled with a pitiful ten-
derness. Her mother looked up suddenly
and noticed a strange expression
came into her eyes; she spoke with curi-
ous eagerness.
"Nannie," she said, "tell me true—
don't I hear as I used to?"
Nannie's face flushed; with a sudden
impulsive gesture she threw her arms
about her mother, sobbing bitterly.
But in her mother's eyes the strange
expression grew into a glad light.
"Don't feel so, Nannie," she said.
"—I guess I'm almost glad. I'm go-
ing to tell your father."

Nannie went home the next day sore-
ly against her will. She told her hus-
band that it almost broke her heart to
think of them; so if it wasn't for little
Nannie she would go back there and
stay, but she couldn't take the child—
it might hurt her throat seriously to
have to shout to them. Then she caught
Nannie up and kissed her again and
again; she wondered how she could live
if she couldn't hear that baby voice.
She was troubled, too, for the child had
a delicate throat and she dared not take
her often to see the old folks—and they
would miss her so!

But it was not so hard; and her mother
spoke of it herself and said that she and
father had talked it over and they knew
it would be best not to have the child
there often. And Nannie mustn't worry
—they could get along all right as long
as they could hear each other. Indeed
it seemed as if the bond of suffering
drew them closer together. It was
beautiful to see the old man's care for
his wife and his tenderness in speaking
to her. The neighbors who had pitied
at first talked often of it; they said they
never saw two old people take such
comfort in each other. Often on sum-
mer days the two high-pitched voices
would be heard, and the people passing
would smile at each other and some-
times linger a little. "Tis kind o' so-
cial to hear them," they said.

So the winter passed and the summer,
and then quite suddenly, one night
when the earth was lying hushed and
silent under a soft fall of snow the
man passed from the silence of his life
into the greater silence that is beyond
the reach of human voice.

The neighbors for miles around came
to the funeral, and the house was full
of grave, decorous whispers, broken
strangely when any one spoke to the
wife. She was pale and silent; only
once did she speak of anything that
she wanted done, and once she called
Nannie hesitatingly. "Tell him I don't
want him to speak so I can hear. I
—it wouldn't seem proper, somehow.
It won't make any difference to Ezra
now, and I—" she faltered a moment
and a tender light came into the faded
blue eyes—"I guess he can't say any-
thing about my husband that I don't
know a hundred times better than him."

"I'll tell him, mother," said Nannie
gently.
Her mother spoke slowly, choosing
her words. "And tell him," she said,
"that we've lived together 30 years, and
that we seem more than 30 weeks as I
look back. And tell him that it all was
never an angry word, never anything
but a love I can't speak of, and tell him,"
she was crying a little now, but her face
was still touched with the wonderful
light, "tell him that the only thing I'm
sorry for now is that there wasn't more
I could do to show my love for my hus-
band."

"I will tell him all," said Nannie.
That was a strange funeral. The
neighbors spoke of it afterwards. The
still figure that sat dead to the words of
tender healing spoken by the minister
seemed to lend an element of mystery
to the scene, and the contrast between
the darkened room and the brilliant,
sparkling world outside flashed upon
their eyes like a miracle.

She spoke of it on the way home and
said that Ezra had been a good husband
to her, and no one would fill his place.
"Nannie means all right," Mrs. Tarbox
said, smoothing her black dress, "but
she hasn't time to set down and make a
work of entertaining her mother."

"Tis so," answered Mrs. Slocum.
"And Hester! Miss entertaining Ezra,
too. 'Taint as though she wasn't afflic-
ted, either way. She's young and
spry enough yet, but it seems most as if
it's no use."

"I shall ort o' miss hearing them,
summer evenings," said her friend.
"We was so near, you know—it seemed
almost like company."

"I guess we'll all feel bad to see the
house shut up," responded Mrs. Slocum,
her voice full of the solemnity of the oc-
casion.
And Mrs. Banks, all unconscious of
the talk, was being driven over to Nan-
nie's. She was so quiet that her daugh-
ter did not disturb her. "I don't feel
as if I knew what to say to her, though
she is my mother," she whispered to
her husband.

They helped her tenderly into the
house and Nannie put her into the cas-
tle chair. From the next room a baby
voice broke in upon them.
"Mamma, can I see dramma! Nannie
wants to see dramma!"
Nannie was hurrying to the door when
a voice stopped her. "Let me have Nan-
nie, please—it's so long since I have!"
Nannie stopped at the door, a great
wonder in her eyes. "Why, mother!"
she exclaimed.

Her mother looked up at her with a
little tremulous smile.

"Yes, I know. I meant to tell you
before, but I couldn't, somehow. I've
heard all the time, I was only deaf a day
or two from cold. I thought I really
was at first, and then I kept it up, be-
cause it comforted—him—somehow.
He'd felt he was old and breaking down,
you know, but when I did, too, he felt
better and cheered right up. There was
only one thing—I did want the baby so!
And it seemed as if 't would break my
heart when she did come not to answer
her, and to have her strain her little
voice to make me hear!"
"And you kept it up all these
months!" said Nannie in hushed tone.
Her mother looked up; she was hold-
ing little Nannie with eager, trembling
hands, and it almost seemed as if the
golden baby head reflected a wonderful
light upon her tired face.
"I guess when you've loved a man
more than 30 years, that isn't much to
do," she said.—Springfield Republi-
can.

AN IRISH WOMAN'S JUBILEE AD-
DRESS TO THE QUEEN.

I've bin thinkin', me leddy, alone be myself
in me cabin down here by the strame,
That the Jubilee folk wud their noise and their
talk
Don't know half what these Jubilees mane.

Sure, you'll not be offendid at all whin I say
I'm as old as yourself to day,
But, acushla, be rason of sickness and could,
I'm more stooped in the shoulders and gray.
You've maybe had griefs, spite of sceptres and
crowns,
And bereavements that burden the heart;
So have I, but in frailty I wain'tin' the call
That bids sorrow and sighin' depart.

But their talk makes me think of the years far
away,
And the trials and ould ways that are gone;
Thru the strame and the sunshine are here,
and the blooms,
But their freshness and gladness have flown.

Sixty years, do they say? I was then a colleen
wid the bloom on me cheek, and me glance
Was as bright as the mairin', and there on
the green
Wid young Dan livry evenin' wud dance.

And on Sundays, wid comrades, wud wander
the hills
Where the heather was bloomin'. And Dan
One sweet evenin' said, "Nora, I love you
astore,"
And I gave him me heart wid me han'.

But we heard that a Prince was sweet-heart-
ing yourself,
And begorra," says Dan, "t'woud be foine
For to make the Queen's weddin'-day ours."
So we did;
Sure you'll maybe remember the time.

I was happy wid Dan as yourself on your throne,
And a thrilkin' came thro' me yoke,
But the fame came soon and the fever,
Ochone!
Me ould eyes are too ould to shed tears!

So I sit in me cabin alone be the strame,
Wid me childer all over the say,
And me leddy, you'll not be offendid at all
If I'm sad on your Jubilee day.
—British Weekly.

THREE MEN IN A BOX.

One evening early in 1787 Molly Win-
gate sat nodding before the cheerful
wood fire burning on the hearth in her
father's house in western Massachu-
setts. She was alone, for her father
was away on urgent business, and good
old Thomas Matthews and his wife, the
housekeeper, had sometime before gone
to bed.

Drowsing thus, she did not hear a
knock at the door, although it was by
no means a light one. The blow which
followed was indeed a thunderous one,
and brought the pretty colonial maiden
to her feet with a bound.

As she opened the door and peered
out, a gruff voice said:
"You will pardon us for disturbing
honorable people at this time of the night,
but we are traveling in this vicinity,
and darkness coming on, we made bold
to try whether or not you could spare
us a room till morning. We are three
in number, and we are by no means
particular where you put us. The most
retired place in the house will best suit
us, and we will promise to make you
no further trouble."

Looking out upon them, as the light
of the candle she held in her hand
brought them out of the shadows,
Molly saw that the men were spattered
from head to foot with mud, as if they
had been riding hard. It had rained all
day and the roads were heavy.
"Your horses are—"
"We are on foot, miss," interrupted
the spokesman, "if I disturbed by the
sharp eyes of the maiden."
For a moment Molly hesitated.
"I hardly know. The night is dark.
Come in. We will see."

No one could say that Molly Wingate
was a coward. If she had been timid,
her tongue would not have betrayed a
single sign of fear.
While Molly brought out another
candle and lighted it, the strangers
entered the room and the fireplace.
After their hard day's jaunt, they were
wet and uncomfortable. Refreshed by
these few minutes before the blazing
hickory, they followed Molly with rather
more cheerful faces.

Up the broad stairway the strangers
followed their guide, who led them
along a long hallway connecting the
front chambers with the more distant
part of the house. As they passed an
open door, one of the men halted and
said:
"Why should not this be a good
place for us? We are not particular."
"But that is only an old storeroom,
more than half full of empty boxes and
rubbish," Molly hastened to say. "You
would not be comfortable there."
"Just the place," went on one of the
other travelers. "No one would ever
think—"

"Sh!" came in a warning undertone
from him who had hitherto done most of
the talking. Then turning to Molly, he
said hurriedly, as if anxious to make
her forget the unguarded words of his
companion: "Indeed, we would just as
soon be in this room as anywhere. We
do not want to go into any room where
our wet clothes and muddy boots might
soil your floors. This is as good as we
could possibly ask."

"But there are no beds here."
"So much the better. We are tired,
and will sleep soundly on the bare
floor."

Thus urged, Molly led the way into
the dingy storeroom. Great boxes and
casks hedged the way, and it was with
difficulty that they made their passage
into the place. A hundred spiderwebs
hung from the smoky rafters, and Molly
once more made bold to urge her vis-
itors to take some more comfortable
room. But they were firmly set against
this plan, and she at last set the candle
on one of the boxes and turned away.

"Good-night, miss," came from one of
the party. "We are sorry to trouble
you, but—Excuse me, did you ever
hear of Daniel Shays?"
"Daniel Shays," repeated the maiden,
surprised at having her mind so abruptly
turned in a direction so entirely differ-
ent from that it had so recently been
pursuing. "Oh, yes, sir! We hear
much about him of late. My father is
even now away leading a company against
him and his senseless men. If
the truth comes to us, Daniel Shays will
soon be where he deserves to be, and
ought to be punished."

"But think of the provocation. Out-
rageous salaries, aristocratic ways
among our senators, extortionate fees
demanded by lawyers, and grievous
taxes, these things have much in all
these to warrant this rebellion, as you
call it."

"There are better ways to change all
this if it is wrong. No man has the
right to take it upon himself to force
them in authority over him to think as
he does. Do you think Daniel Shays is
right?" she demanded, with flashing
eyes.
"Well, we are divided on that point,"
was the reply.
"And you were discussing this coming
along with me, discussing this rebellion,
and some of us are coming to think—"

"You forget that you had said good
night," broke in one who had hitherto
not spoken. "It is late, and we are
tired."
"We may speak of this further in the
morning," was Molly's parting word as
she went down the long hallway in the
dark. A true and loyal heart beat in
Molly's bosom. It meant much to her
that the laws of her native colony should
be assailed as Daniel Shays had done.
Had there been need, no one could doubt
that she would have followed her brave
father in pursuit of that fearless rebel.

Sitting once more by the fire in the
old kitchen, Molly's thoughts at first
went out to her father. She supposed
him to be in the near neighborhood, for
Daniel Shays and the men who were
following him had been put to flight
and even then were being to fight
pursued by the indignant law-abiding sol-
diers. As she mused over this and the
words of those who had sought shelter
under her father's roof that night, all at
once a thought came to her which for a
moment sent the blood flying through
her veins.

Who were the men she had just hid-
den away in the old storeroom upstairs?
Why were they so afraid at this hour
of the night? How could their gar-
ments have become so bespattered with
mud if not by long and sharp riding on
horses?
"If I knew they were fugitives from
Shays' army—"
Well, what then? Every moment the
conviction became stronger that she had
guessed right, and that at this very
moment three of the rebels she hated
so much were in the room overhead. If
so, they should escape no farther!

It was but fair that she should know
whether her suspicions were well
founded or not; and with quickly beat-
ing heart she crept up the stairs and
along the hallway in the dark until she
could listen at the opening to the store-
room. No door had ever been swung
at that room, and she had no difficulty
in hearing from within the low voices of
the strangers. Not long had she to wait
before she learned enough to convince
her that she was right. Three of Daniel
Shays' men had taken refuge from pur-
suit in her father's house.

Quickly Molly laid a plan for their
capture. Thomas and his wife were too
old to be of much active service, but
they might take some part in Molly's
campaign; and she was not long in
awakening them, and bringing them
down into the kitchen, where they lis-
tened with wondering expression to the
plans of their young mistress.

A little while afterward there went
up to the ears of the restless fugitives
the storeroom a strange din as if of
many voices, now here, now there, all
about the house, mingled with the tramp
of horses in various parts of the yard.
Orders were given in a stern voice, as if
a commander were giving orders to a
strong force of men, stationing them
around the building. Soon hurried
steps came along the hallway, and
Molly appeared at the door with a flash-
ing candle in her hand.

"Are you awake?" she asked, sharply.
"Up, quick! the house is besieged by
horsemen. They must seek you. I
know not for what other purpose they
came."

More speedily than can be told the
fugitives sprang from their hiding places
among the boxes, and came toward the
maiden.
"Are you sure we will be discovered
here? This room seems secure from
search."

"No; do not flatter yourself. My father
himself may be here before morning,
and he knows the whole house. But I
have a plan which may prove
good. See! here is a great box. It is
large enough to hold you all. Get into
it and I will put the cover over you,
and arrange it in such a way that no
one would dream that it had been opened
for years."

"We are placing ourselves wholly in
your power. You surely would not—"
"Quick! I say, or I will not answer
for the consequences," was Molly's only
reply, and the strangers crowded the
stairway frames into the box pointed
out by the maiden.

With a few rapid blows Molly nailed
the cover firmly in its place, and then
piled on the top of it smaller boxes as
high above her head as she could
reach.

Then out into the night went the
brave girl to arouse help in the settle-
ment two miles away, leaving old
Thomas and his wife to keep their
march around the beleaguered house
until her return; and when the morn-
ing's sun shone the captive men who
had risked their fortunes on the wrong
side of Daniel Shays' rebellion, came out
of the box to be handed by Molly to the
authorities they had so shamelessly
defied.—Harper's Young People.

GEMS.

He who receives a good turn should
never forget it; he who does one should
never remember it.—Charron.
You will confer the greatest benefits
on your city, not by raising its roofs,
but by exalting its souls. For it is
better that great souls should live in
small habitations than that abject slaves
should burrow in great houses.—Epictetus.

Paley's simile of the watch is no longer
applicable to such a world as this. It
must be replaced by the simile of the
flower. The universe is not a machine,
but an organism, with an indwelling
principle of life. It was not made, but
it has grown.—John Fiske.

The way in which a man recovers
from one of his own blunders is a sure
test of character. If he finds that he has
made a mistake, he will either say so in
so many words, or else he will wriggle
or twist to avoid a confession. There
is nothing humiliating in acknowledging
an error either of judgment or of con-
duct. A magnanimous nature finds
relief in saying explicitly: "I was
wrong." But it is not everyone that
magnanimous. The small folk who
virtually lay claim to infallibility shrink
back from the admission of mistake
upon their part as if it were a derogation
from the dignity of their character.—
Christian Advocate.

Look up, look forth, and on!
There's light in the dawning sky;
The clouds are parting, the night is gone;
Prepare for the work of the day!
Follow thy pasture line,
And far thy shepherd stray,
But keep thy garments pure:
Are waiting for purer seed
Of knowledge, desire, and deed,
Of better sunshine and mellow rain!
Pluck them back, with the old disdain,
From touch of the hands that stain!
So shall thy strength endure.
Transmute into good the Gold of Gain,
Compel to beauty thy ruder powers,
Thy hourly toils to coming hours,
Shall plant, on thy fields, art!
With the oak of Toil, the rose of Art!
—Bayard Taylor.

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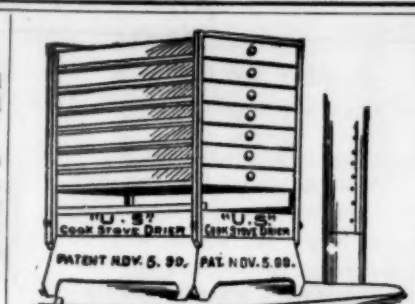
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THE HORSE.

—Page, 2.09 3-4 has broken down.

—Pointer and Patchen are the '97 favorites.

—Planet, 2.04 3-4 has changed hands for \$5000. He will be campaigned in Barney Demore's stable.

—The champion of the turf, Alix 2.03 3-4 is being worked, and she will soon appear in special races and exhibition miles.

—The first free-for-all trot of the year was at Hartford last week. William Penn won, Bengetta second and Grace Hastings third.

—Mr. James H. Murphy of Chicago owns Star Pointer, 1.59 1-4. Dave McCleary received \$2,500 for driving him the record-breaking mile.

—Star Pointer's dam, Sweetstakes, is the dam of Hal Pointer, 2.04 1-2, and is the only mare in the world that ever produced two horses with a record better than 2.05.

—Aroostook can raise big horses as well as big potatoes. T. H. Phair of Pre-que Isle recently purchased of O. S. Ginn a Clydesdale colt four years old that weighs 1600 lbs. The colt is by the Lyman Johnson horse.

—Mr. Ed. Geers, who drove Joe Patchen in 2.01 1-2, drives the horses of Village Farm, Buffalo, some of which are The Abbott, The Monk, 2.10 1-2, Athanio, 2.11 1-4, Passing Belle, 2.16 1-2, and many more winners.

—Star Pointer defeated Joe Patchen in their race at Hartford, but he had a hard task. The purse was \$5000 and the best two out of three heats won. With the work these fast pacers are doing three heats under 2.04 is too much, and it is a good thing that it has been reduced to two.

—W. E. Smith of Exeter has a very promising six-year-old bay mare called Electra, by Bay Rolfe, stands 15.2 hands, weighs 1050 lbs., and has been given a trial mile of 2.29 1-4. The mare was bought by Mr. Smith last fall of M. H. Salley, of Dexter, Me., and horsemen are expecting a fast record from her next season.

—Pure B, the handsome stallion, with a race record of 2.30 is owned by Chas. O. Cony of Augusta, Me. He is by Pure Wilkes, record of 2.17 1-4; 1st dam, Cora B, by Charlie B, record 2.35 sire of 25 in the 2.30 list. Pure B is a nice bay with dark points, stands 15.2 hands and weighs over 1000 lbs. He is a great roadster and natural trotter and has shown ability to obtain a record of 2.20.

—Mr. Michael Crowne of Neponset has bought the pacer Dr. M. There are two horses of this name and color. One foaled in 18—, by King Mambrino; got a record of 2.13 1-4 at Hamilton, P. Q. In 1893, The other Dr. M., by Brown Prince, once owned by our friend, Walter Hedley, had a mark of 2.23 1-4 over Misto to a high wheeled sulky. He was a fast horse, but with some drivers took hold pretty well.

—The smallest horse in the world is Leo, owned in Italy. He is but 21 inches high and yet he is perfectly formed. His mane and tail reach the ground and he is very intelligent. He is one of the Shetland breed, but the smallest of this small breed formerly known as about 32 inches high. He is now on exhibition in Italy along with the Queen's Shetland ponies. In the spring he will be brought to New York and exhibited at the New York horse show.

—Secy. C. M. Jewett is trying his hand as trainer on a very nice looking mare, bred somewhat as Bismark is, but she goes farther back in standard lines than the dam of the little Maine wonder. She is Bayard Wilkes, dam by Glenarm, second dam, by Daniel Boone, third dam, General Knox, and fourth dam, by the old Eaton Horse. Last year this mare produced a foal by Pedler 2.18 1-4. On its dam's side it is pretty near a thoroughbred trotter, for its five dams were by standard bred producing stallions. The granddam of Sec. Jewett's mare was a terror on her own account. No road was too long for her, and she seemed to enjoy a chance to get off on the road and sort of half run away on a trot as she spurned the hilly roads of the Pine Tree State. Mr. Jewett drove this mare last week a mile in 2.28 1-4, and in a very easy way. She will be another to Bayard Wilkes honor before fall.—Spirit of the Hub.

Treat your horse well and he will treat you well. Give him a bed of German Peat Moss, C. B. Barrett, 45 North Market street, Boston, Mass.

Weather and Crops.

FOR WEEK ENDING SEPTEMBER 6.

The week just closed has, by its warm days and abundant sunshine, greatly improved the ripening and harvesting of crops; the nights, however, were too cool. The mercury fell below 40 on the mornings of the 3d and 4th in the interior of northern sections, but owing to fog the frosts caused little damage. In the more northern sections the week was generally pleasant, the rainfall consisting solely of light local showers. In central sections about half a day's rain prevailed (on the 2d), the amounts being moderate. In extreme southern Connecticut this storm gave a drenching rain, with amounts varying between 1.25 and 2.50 inches. Reports indicate that corn is gaining rapidly and that there is hope of saving part of the crop. Cutting has begun on early pieces in Connecticut, but the crop shows a poor early. Late pieces are uncertain. The tobacco harvest is nearly ended.

MAINE.

The grain harvest is progressing rapidly and fine crops are being secured, as a rule. Considerable fall plowing and seeding is being done. Potatoes are very poor, although some hopes are expressed for a fair crop on dry and sandy soils. Corn has made good progress during the past week, but from fourteen to twenty days of favorable weather will be required to mature the crop. It is an off year for fruit, especially apples. Blackberries, however, are very plentiful.

NEW HAMPSHIRE.

Corn has forged ahead well, and should frost hold off, some fields will give a fair yield, but the greater portion of the crop will fall far below normal. Silage is being made in numerous sections. Potatoes are very disappointing, the crop being greatly below the average, both in quality and quantity. The second grass crop is, in general, extra good. Apples are falling badly; grapes are backward; plums, pears and peaches abundant. Beans light and mildewy. Fall seed continues good. Considerable winter rye sown.

VERMONT.

The nights have been so cool that corn is gaining slowly. Ten to fifteen days will pass nearly all of it beyond injury from frosts. A fair crop of rowen has been gathered; also oats. Potatoes are estimated to be half a crop. Some farmers are placing them in cold storage. Grain is generally good, although some is not well filled. The common varieties of grapes do not show good color; plums and pears are doing well. Apples small crop. Second hay crop good.

MASSACHUSETTS.

The weather has been sunny enough for good harvesting and ripening. A large crop of rowen in good condition is secured. Corn is improving. Potatoes still small crop. Oats rusted and largely gone into fodder. Vegetables doing well; tomatoes ripening. Grapes begin to turn and plums are ripe.

RHODE ISLAND.

The weather has been sunny and warm for the greater part of the past week and favorable for maturing crops, which are doing well, except potatoes, which continue to rot fast. Corn will probably make a good crop.

CONNECTICUT.

Ten days more of favorable weather will save much corn, although much of it will be a short crop. Potatoes still rotting, and even where not they are small and unsaleable. Peaches abundant, but lack flavor. Grapes are affected with dry rot, and where the foliage is heavy will not yield well. Apples promise a light crop. Pastures fresh and abundant. Buckwheat doing well, but needs much time for maturing.

J. W. SMITH.

Unprofitable Cows.

The Maryland Experiment Station gives in a recent bulletin the results of the herd of eleven cows for the year 1897, from which some interesting conclusions may be drawn. With butter at twenty cents a pound, the cows averaged \$45.97 for the year, from which, according to the bulletin, \$17 must be deducted for labor and \$31 for feed, leaving a net loss of \$2.03 to each cow. These cows were selected from one of the best farming counties in the state, and were slightly above the average. Probably this herd was well fed at the station.

If a few of our patrons would take pains to keep account of their cattle they would perhaps find out that they are feeding no better stock.

BIG DROPS.

For many years it was the regulation thing to see big drops during the progress of the Taunton Fair. Since no one cared particularly for them they were dropped. They had a habit of wetting and annoying people and lowering the treasury receipts. Now the management has substituted another kind of a drop, a parachute drop for the amusement of the crowd. There will be one the first day; two, a race between a man and a woman, the second day, and a single one on the third day. Drop around and see the sights. See advertisement in another column for further particulars.



AGRICULTURAL FAIRS FOR 1897.

We shall be glad to receive information from secretaries relative to the dates of holding Fairs not included in the following list.

MASSACHUSETTS.

Amesbury & Salisbury, Amesbury.	Sept. 28, 29, 30
Berkshire, Pittsfield.	Sept. 14, 15, 16
Blackstone Valley, Uxbridge.	" 28, 29
Bristol Co., Taunton.	" 21, 22, 23
Brookline, Brookline.	" Oct. 5, 7, 8, 9
Deerfield Valley, Charlemont.	" 16, 17
Eastern Hampden, Palmer.	" 21, 22
Essex, Peabody.	" 21, 22, 23
Franklin Co., Greenfield.	" 23, 24
Hampden.	" 23, 24
Hampshire, Amherst.	" 28, 29
Hampshire, Franklin and Northampton.	" Oct. 6, 7
Hillsdale, Cummington.	" 28, 29
Hingham, Hingham.	" 28, 29
Hudson Valley, North Adams.	" 28, 29
Housatonic, Great Barrington.	" 29, 30
Martha's Vineyard, W. Tisbury.	Sept. 21, 22
Mass. Horticultural, Boston.	" 30, Oct. 1
Middlesex North, Lowell.	Sept. 16, 17, 18
Middlesex South, Framingham.	" 14, 15, 16
Oxford, Oxford.	" 15, 16, 17
Plymouth County, Bridgewater.	" 23, 24
Spencer, Spencer.	" 23, 24
Union, Blanford.	" 15, 16, 17
Wakefield Horticultural and Agricultural, Wakefield.	" 23, 24
Weymouth, South Weymouth.	" 23, 24, 25
Worcester East, Lancaster.	Sept. 16, 17
Worcester North, Fitchburg.	" 21, 22
Worcester North-west, Athol.	" Oct. 5, 6, 7
Worcester South, Sturbridge.	Sept. 16, 17
Worcester County West, Barre.	" 30, Oct. 1

MAINE.

Cumberland Farmers' Club, W. Cumberland.	Sept. 28, 29
Durham Agricultural, Durham.	" 21, 22
East Edlington, East Edlington.	" 15, 16
Franklin Agricultural, Farmington.	" 14, 15, 16
Hancock Co., Blue Hill.	Sept. 21, 22, 23
Lincoln Co., Lincoln.	" Oct. 5, 7
North Cumberland Agricultural, Harrison.	Sept. 21, 22
No. Penobscot, Kingman.	Sept. 14, 15, 16
No. Waldo, Unity.	" 29, 30
Sagadahoc Agricultural, Topsham.	Oct. 12, 13, 14
Waldo Co. Agricultural, Belfast.	Sept. 21, 22
Washington County Agricultural, Penobscot.	" 15, 16
W. Washington Co. Agricultural, Cherryfield.	" 14, 15, 16
Waldo & Penobscot, Munroe.	" 14, 15, 16
York County, Sach.	" 14

NEW HAMPSHIRE.

Cheshire, Keene.	Sept. 21, 22, 23
Narragansett Grange, Bedford.	" 21, 22
N. H. State Grange, Tilton.	" 14, 15, 16
Rockester, Rockester.	Sept. 21-24

RHODE ISLAND.

Pawtucket Valley, River Point.	Sept. 22-24
Washington Co., Kingston.	" 14-17

CONNECTICUT.

Berlin, Berlin.	Sept. 22
Brantford, Brantford.	" 22, 23
Bristol Fair Corporation, Bristol.	" 22, 23
Chester, Chester.	" 22, 23
Cleaton, Cleaton.	" 22
Connecticut Horticultural, Hartford.	" 22
Danbury, Danbury.	Oct. 4-9
East Granby, East Granby.	" 18-20
Gulford, Guilford.	" 29
Hartford, Hartford.	" 29
Killingworth, Killingworth.	" 6
Meriden, Meriden.	Sept. 15-17
New Milford, New Milford.	" 14-16
New London Co., New London.	" 21-23
Newtown, Newtown.	" 23-30
Simsbury, Simsbury.	Oct. 21-22
Stafford Springs, Stafford Springs.	" 5-7
Suffield, Suffield.	Sept. 21-22
Union (Monroe, etc.), Union.	" 23-24
Union (Somers, etc.), Broad Brook.	" 29
Williamstown, Williamstown.	" 29
Windsor, Windsor.	" 13-15
Wolcott, Wolcott.	Oct. 13

VERMONT.

Brandon, Brandon.	Oct. 5, 6
Rutland, Rutland.	Sept. 14-16
Windsor, Woodstock.	" 22-24

NEW YORK.

Essex, Westport.	Sept. 14-16
Franklin, Malone.	Sept. 28, Oct. 1
Genesee, Batavia.	Sept. 29-30
Herkimer, Herkimer.	Sept. 14-16
Lewis, Lowville.	" 14-17
Madison, Brookfield.	" 21-23
Monroe, Brockport.	" 30, Oct. 2
Niagara, Lockport.	" 22-25
Oneida, Oneida.	" 29-34
Ontario, Canandaigua.	" 21-23
Orange, Middletown.	" 14-17
Orleans, Albion.	" 23-25
Roseton, Oswego Falls.	Sept. 14-17
Sebecus, Sebecus.	" 16-18
Sebecus, Cooperstown.	" 20-22
Queens, Minerva.	" 21-23
Rensselaer, Nassau.	" 21-24
Rockland, Rockland.	" 29-34
St. Lawrence, Canton.	" 14-17
Schoharie, Schoharie.	Sept. 27-30
Schoharie, Cobleskill.	" 20-23
Schoharie, Watkins.	" 28, Oct. 1
Schoharie, Watkins.	" 28, Oct. 1
Seneca, Waterloo.	" 28, Oct. 1
Steuben, Bath.	" 28, Oct. 1
Suffolk, Riverhead.	" 28, Oct. 1
Tompkins, Dryden.	" 21-23
Wayne, Lyons.	" 16-18
Wyoming, Perry.	" 28, 29
Wyoming, Warsaw.	" 14-16
Yates, Penn Yan.	" 21-23

Root Galls of Cultivated Plants.

BY PROF. BYRON D. HALSTED, EXPERIMENT STATION, NEW BRUNSWICK, N. J.

[Read before the Society of American Florists at the Providence Convention.]

Galls, that is, unusual malformations of small portions of a plant, occur upon leaves, stems and roots, and may be induced by insects or other animals, fungi, etc. The time limits of this paper will not permit even the briefest outline of the various forms of galls of leaves or stems, and the subject assigned me is at once taken in hand.

Root galls are many and equally various as to their origin. A cabbage or turnip plant, for example, is making a death struggle and upon removing its roots from the ground they are found malformed beyond what the imagination would picture. The English truckers call it "finger and toes" in an attempt to describe in the name the strange combination of roots. We call it "clubroot" or "clump foot"; but by whatever name it is known the fact remains that the root system has been wonderfully malformed and instead

of the ordinary fibrous roots there are a multitude of ill-shaped nodules strung together.

This galling of the turnip, cabbage and allied plants is due to a minute fungus that makes its attack upon the plant, while it is quite young and the roots are small and tender. The germs are in the soil and remain there for years feeding upon the roots of weeds or other plants belonging to the cabbage group of plants. Thus the mustards, shepherd's purse, pepper grasses and similar weeds plants all harbor the club-root fungus. This fact of the wide range of the turnip club root pest is brought out to show how plants related to the crop infested may be the means of preserving the enemy and even increasing the germs in a soil, while the field is devoted to some other crop simply because the weeds as nurse plants of the fungus are permitted to grow.

ROOT GALLS ON LEGUMINOUS PLANTS ARE HELPS, NOT HINDRANCES.

Instead of a cabbage one pulls up a vigorous bean plant. Upon its branching roots are a score or more of nearly spherical bodies half the size of small peas. These are the so-called tubercles and consist of a wall of normal bean root tissue; but within this the cell contents consist of innumerable bacteria-like cells.

The following is Tuben's description of these galls as translated by Smith in the large book upon "Diseases of Plants" issued during the present year. "The short red-shaped microbe forces its way into a root hair or epidermal cell, multiplies there, and is conducted to the inner cortical cells by plasma threads continuous through the cell walls. A rapid division of the inner cortical cells is set up till a tubercle is formed. The bacteria multiply simultaneously and are transferred into new cells where a great change comes over most of them; they enlarge very much and become club-shaped or dichotomously branched bodies without power of division. The great importance of the tubercles of leguminosae is that the plants bearing them are capable of taking up free nitrogen from the atmosphere and utilizing it."

This somewhat lengthy quotation has been made because the finding of these galls upon the roots of clover and other leguminosae by some growers of roses and other ornamental plants had led to some discussion in the public press. The galls common to the clover roots and those of peas, beans, and many other plants, are not due to the same cause as those met with upon the roots of many ornamental plants, and the finding of them upon the clovers growing in a certain soil should be in no way used as a reason for discarding that soil for greenhouse purposes. In like manner the galls produced in the roots of any clover or clover-like plants in a bed devoted to roses is no index whatsoever that there is danger of the roses becoming galled.

The subject of tubercles and the peculiar relation that they bear in the economy of the plant bearing them forms one of the most interesting chapters in modern vegetable nutrition. In case of the galls upon the cabbage roots they are a positive injury and sooner or later the plant loses the power of root absorption and wilts and dies; the roots in the meantime becoming rotten and foul smelling. With the tubercles of the leguminosae there is increased vigor given to the plant that bears them, and the advantage of their development is a well-recognized fact which is taking practical shape in the artificial propagation of the tubercle germs and their being sown where there may be otherwise a lack of them in the soil.

ROOT GALLS ON ROSES.

In the third place let us consider the nature of the root gall of the roses. These are not due to fungi or the organisms that produce the tubercles of the leguminosae plants, but result from the attack of microscopic worms that are known as nematodes. These creatures are in form like that of an ordinary eel and under the microscope are easily recognized by their almost constant wiggling, thus giving them the common name of eel-worms. The general appearance of rose roots when infested with the nematode worms is not unlike that of a lupine or a sweet clover plant. The galls of the one might easily be mistaken for those of the other until the microscope is brought to the rescue when the differences become so remarkable that the wonder is that causes so widely separated should produce results that to the naked eye are so similar.

The galls of the rose vary much in size and shape, but usually are but a small fraction of an inch in diameter and consist of enlargements of the fibres of the root system.

These nematode galls are much more abundant upon the roots than generally known, and because of their being underground they remain unnoticed until the infested plants show unmistakable signs of decline, when an investigation results in the discovery of the root galls. They are much more abundant in warm climates than elsewhere, and that is one reason why they are especially prevalent in the greenhouse.

ROOT GALLS ON TOMATOES.

In looking up the subject of a tomato blight in Mississippi a few years ago, the writer was impressed with the fact that nearly every tomato plant was affected with root galls due to nematodes. In the north the freezing of the soil thoroughly and deeply during the winter tends to keep these root enemies in check, and from experience it is a fact they are more abundant in seasons that follow mild winters.

In this there is a practical suggestion, namely, the long hard freezing of a soil that is to be afterwards employed in the greenhouse for the growth of plants like roses and violets that are very liable to attack from the nematodes. These worms propagate with great rapidity where conditions favor them, and it is better to take all precautions in keeping them out of the bed at the outset than to leave the work of eradication until after they are well established in the plants.

REMEDIES.

This leads directly to a consideration of precautionary measures. In the first place the plants should be free from the worms, the most difficult end to reach, as it means a removal of the earth and a careful examination of the roots with the rejection of all plants that are infested. The eel-worms may come in with the earth and, as before stated, they infest the roots of many plants, there is difficulty in making a selection and feel at all certain of freedom from the worms. Soil that has been used for growing a previous crop should be discarded, especially if the plants lacked in vigor, due to inroads upon them made by the nematodes. Freezing, as before stated, is a cleaning process for the soil. On the other hand a high temperature is also inimical to them. The heating of the soil, either baking or steaming is probably the more available of the two treatments and has been resorted to by some growers with cheering results. If manure should be the chief vehicle for the entrance of the worms it may be possible to either heat it, or else resort to plant food added in the form of commercial fertilizers. It is also possible that some substance may be put upon the soil that, while harmless to the plants, may kill the worms that are not already in the roots of the plants. Lime is such a substance, which, when sprinkled over the surface will at each watering yield a lime wash that is destructive to the worms it reaches. Kainit, one of the leading commercial fertilizers, has proved effective in combating insects that work through the soil, and it is not unlikely that this substance may prove of value in the greenhouse.

CONCLUSIONS.

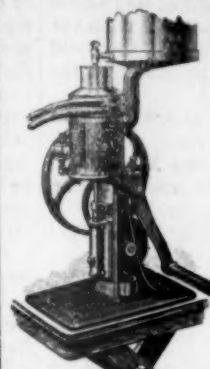
In conclusion it has been the attempt in this brief paper to call attention to three classes of root galls by citing one case of each. First those malformations of roots like the club-root of the cabbage due to a low form of mold, the germs of which enter from the soil, and when in sufficient number destroy the affected plant.

Secondly, the root galls of clover and clover-like plants which are produced by bacterial germs, but instead of inducing decay promote the life of the plant in which they are lodged. Between the clover and the tubercle germ there exists so-to-say a mutual understanding and their life processes are united for the benefit of both.

Lastly, a third class of root galls is considered, namely, those most abundant upon the roots of greenhouse plants much dreaded by florists. These are produced by microscopic worms that, thriving in the tissue of the abnormally swollen roots, check the activity of the plant and ultimately may cause it to sicken and die.

For the eradication of these micro-

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scopic eel-worms there are certain precautionary measures that may well be borne in mind, namely the examination of the roots of plants and the rejection of all that are galled; the cleansing of the soil in all its constituents by freezing, baking or steaming; the use of lime water while the crop is growing and possibly that of Kainit or some other commercial fertilizer, bearing in mind always that sick plants are unprofitable and good management means watchfulness from the start and always.

DISCUSSION.

In the discussion that followed Mr. M. J. O'Brien said that while eel-worms cannot usually be seen through an ordinary magnifying glass, their presence can be noted when a small piece of a root gall is squeezed between two pieces of glass and then placed under the magnifier. Mr. May stated that in examining a root gall for eel-worms he moistened a piece of the gall and squeezed out the liquid with a pair of tweezers. In this liquid the eel-worms could be readily seen under the microscope. He had counted as many as thirty worms in the liquid from a piece of root gall no larger than a pin head. Mr. May knew of no way of killing eel-worms in the soil except by heating the soil to from 220 to 240 degrees.

Mr. Benj. Hammond recommended the use of lime mixed with a small quantity of nitrate of soda. The nitrate was added merely to stimulate root action. The lime slackened slowly and when in the form of a dry powder was sifted over the bed. Each watering would carry some of the lime to the eel worms. *American Florist.*

BITS OF FUN.

First Neighbor (proudly): My daughter is learning the violin. Second ditto (sadly): So I hear.—Fun.

Every one admires a man of push, but nobody wants to be the person pushed aside by the man.—St. Joseph News.

Van Duser: I want to know something, Miss Amy. Amy: I have thought for years, Mr. Van Duser, that that was just what you wanted.

Aunt:—Well, Bobby, what do you want to be when you grow up? Bobby (suffering from parental discipline):—"An orphan."—Tid-Bits.

Suburban: What do you suppose I have raised in my garden this far this summer? Visitor: Well, if you've had the same weather that we have, I imagine you must have raised your umbrella oftener than anything else.—Household Words.

A man and woman called at the house of a minister for the purpose of being married. After going through the preliminary part of the service, the minister asked the usual question, "Do you, John, take this woman to be your lawful, wedded wife?" This was met by the rejoinder, "What in thunder do you suppose I came here for?"

Charles Lamb had a horror of notoriety, and of being "lectured" in public places. Impertinence or offensive interference of any sort he could not brook.

THE BICYCLE RACES

at the Bristol County Fair at Taunton on Sept. 21, 22 and 23 will be the liveliest ever seen in Southern New England. The cash prizes offered are such big fellows that there will be some incentive for the crack riders putting forth their best efforts to get where they are. The fastest riders in this section have already signified their intention to compete and it goes without saying that nothing of all the splendid exhibition during the three days will bring out such pretty work or so much enthusiasm as the bicycle races. Remember the dates in September. See advertisement in another column.



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